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TO: Lansana Nyalley
Location: rem/5b21/5c18
Art Unit: 1621
May 9, 2005

Case Serial Number: 10/626997

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Search Notes

=> fil hcaplus

FILE 'HCAPLUS' ENTERED AT 15:33:48 ON 09 MAY 2005

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FILE LAST UPDATED: 8 May 2005 (20050508/ED)

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This file contains CAS Registry Numbers for easy and accurate substance identification.

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L1      21 SEA FILE=REGISTRY ABB=ON  PLU=ON  C3H2F4/MF
L2      3 SEA FILE=REGISTRY ABB=ON  PLU=ON  L1 AND 1(W)3(W)3(W)3(W)TETRAF
        LUORO?
L3      15 SEA FILE=REGISTRY ABB=ON  PLU=ON  C3H2CLF3/MF
L4      3 SEA FILE=REGISTRY ABB=ON  PLU=ON  L3 AND 3(W)3(W)3(W)TRIFLUORO?
        AND 1(W)CHLORO?
L5      15 SEA FILE=REGISTRY ABB=ON  PLU=ON  C3HCLF4/MF
L6      3 SEA FILE=REGISTRY ABB=ON  PLU=ON  L5 AND 1(W)3(W)3(W)3(W)TETRAF
        LUORO? AND 1(W)CHLORO?
L7      7 SEA FILE=REGISTRY ABB=ON  PLU=ON  C3H3F5/MF
L8      1 SEA FILE=REGISTRY ABB=ON  PLU=ON  L7 AND 1(W)1(W)1(W)3(W)3(W)PE
        NTAFLUORO?
L9      108 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L2 OR (1(W)3(W)3(W)3(W)TETRAFL
        UORO? AND PROPEN?)
L10     SEL  PLU=ON  L2 1- CHEM :          9 TERMS
L11     64 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L10
L12     113 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L11 OR L9
L13     SEL  PLU=ON  L4 1- CHEM :          7 TERMS
L14     69 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L13
L15     140 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L14 OR (1(W)CHLORO?)(L)(3(W)3(
        W)3(W)TRIFLUORO?)
L16     SEL  PLU=ON  L6 1- CHEM :          4 TERMS
L17     12 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L16
L18     29 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L17 OR (1(W)CHLORO?)(L)(3(W)3(
        W)3(W)TETRAFLUORO?)
L19     SEL  PLU=ON  L8 1- CHEM :          9 TERMS
L20     652 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L19
L21     831 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L20 OR (1(W)1(W)1(W)3(W)3(W)PE
        NTAFLUORO?)
L22     46 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L12 AND (L15 OR L18 OR L21)
L23     39 SEA FILE=REGISTRY ABB=ON  PLU=ON  HYDROGEN FLUORIDE?/CN

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L24 SEL PLU=ON L23 1- CHEM : 173 TERMS
 L25 46497 SEA FILE=HCAPLUS ABB=ON PLU=ON L24
 L26 46497 SEA FILE=HCAPLUS ABB=ON PLU=ON L25 OR HYDROGEN(W) FLUORID?
 L27 21 SEA FILE=HCAPLUS ABB=ON PLU=ON L22 AND L26

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=> d ibib abs hitstr l27 1-21

L27 ANSWER 1 OF 21 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2005:78307 HCAPLUS

DOCUMENT NUMBER: 142:158394

TITLE: Two-step process for the manufacture of 1,
 3,3,3-
tetrafluoropropene from 1-
chloro-3,3,3-
trifluoropropene

INVENTOR(S): Tung, Hsueh Sung; Johnson, Robert C.; Merkel, Daniel
 C.

PATENT ASSIGNEE(S): Honeywell International Inc., USA

SOURCE: U.S. Pat. Appl. Publ., 6 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2005020862	A1	20050127	US 2003-626997	20030725
WO 2005012212	A2	20050210	WO 2004-US23160	20040721
WO 2005012212	A3	20050331		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH,
 CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD,
 GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,
 LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI,
 NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY,
 TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM,
 AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK,
 EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE,
 SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE,
 SN, TD, TG

PRIORITY APPLN. INFO.:

US 2003-626997

A 20030725

AB 1,3,3,3-Tetrafluoropropene

is prepared by: (A) reacting 1-chloro-3,

3,3-trifluoropropene with hydrogen

fluoride in the vapor phase and in the presence of a fluorination

catalyst and under conditions sufficient to form an intermediate product

comprising 1-chloro-1,3,3,

3-tetrafluoropropane and/or 1,1,

1,3,3-pentafluoropropane; and (B)

reacting the intermediate product with a caustic solution (e.g., aqueous NaOH)

and under conditions sufficient to dehydrochlorinate 1-

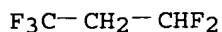
chloro-1,3,3,3-

tetrafluoropropane and/or to dehydrofluorinate 1,

1,1,3,3-pentafluoropropane

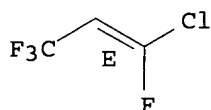
, forming 1,3,3,3-

IT **tetrafluoropropene.**
 460-73-1P, 1,1,1,3,
 3-Pentafluoropropane 730993-49-4P
 730993-51-8P
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT
 (Reactant or reagent)
 (in a two-step process for the manufacture of 1,3,
 3,3-tetrafluoropropene from 1-
 chloro-3,3,3-
 trifluoropropene)
 RN 460-73-1 HCAPLUS
 CN Propane, 1,1,1,3,3-pentafluoro- (6CI, 8CI, 9CI) (CA INDEX NAME)



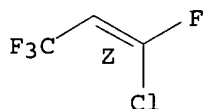
RN 730993-49-4 HCAPLUS
 CN 1-Propene, 1-chloro-1,3,3,3-tetrafluoro-, (1E)- (9CI) (CA INDEX NAME)

Double bond geometry as shown.



RN 730993-51-8 HCAPLUS
 CN 1-Propene, 1-chloro-1,3,3,3-tetrafluoro-, (1Z)- (9CI) (CA INDEX NAME)

Double bond geometry as shown.

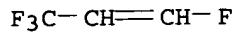


IT 7664-39-3, Hydrogen fluoride, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (in a two-step process for the manufacture of 1,3,
 3,3-tetrafluoropropene from 1-
 chloro-3,3,3-
 trifluoropropene)
 RN 7664-39-3 HCAPLUS
 CN Hydrofluoric acid (8CI, 9CI) (CA INDEX NAME)

HF

IT 1645-83-6P, 1,3,3,3-
 Tetrafluoropropene
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (two-step process for the manufacture of 1,3,3,
 3-tetrafluoropropene from 1-
 chloro-3,3,3-
 trifluoropropene)
 RN 1645-83-6 HCAPLUS

CN 1-Propene, 1,3,3,3-tetrafluoro- (9CI) (CA INDEX NAME)

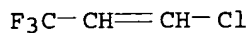


IT 2730-43-0, 1-Chloro-3,3,
3-trifluoropropene

RL: RCT (Reactant); RACT (Reactant or reagent)
(two-step process for the manufacture of 1,3,3,
3-tetrafluoropropene from 1-
chloro-3,3,3-
trifluoropropene)

RN 2730-43-0 HCAPLUS

CN 1-Propene, 1-chloro-3,3,3-trifluoro- (9CI) (CA INDEX NAME)



L27 ANSWER 2 OF 21 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:117817 HCAPLUS

DOCUMENT NUMBER: 140:183586

TITLE: Process for manufacturing 1,3,
3,3-tetrafluoropropene

INVENTOR(S): Yoshikawa, Satoru; Tamai, Ryoichi; Hibino, Yasuo

PATENT ASSIGNEE(S): Central Glass Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004043410	A2	20040212	JP 2002-206314	20020715
PRIORITY APPLN. INFO.:			JP 2002-206314	20020715

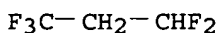
AB In the title process comprising reacting 1-chloro-
3,3,3-trifluoropropene with
hydrogen fluoride in the vapor phase in the presence of
a fluorination catalyst for manufacturing 1,3,3,
3-tetrafluoropropene (I), said catalyst comprises
titanium and/or chromium. I is an intermediate for pharmaceuticals,
agrochems., etc. The title process can be used for continuously and
industrially manufacturing I.

IT 460-73-1P

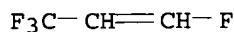
RL: BYP (Byproduct); PREP (Preparation)
(process for manufacturing 1,3,3,3-
tetrafluoropropene by fluorination of 1-
chloro-3,3,3-
trifluoropropene)

RN 460-73-1 HCAPLUS

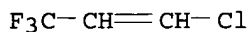
CN Propane, 1,1,1,3,3-pentafluoro- (6CI, 8CI, 9CI) (CA INDEX NAME)



IT 1645-83-6P, 1,3,3,3-
Tetrafluoropropene
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP
(Preparation)
(process for manufacturing 1,3,3,3-
tetrafluoropropene by fluorination of 1-
chloro-3,3,3-
trifluoropropene)
RN 1645-83-6 HCAPLUS
CN 1-Propene, 1,3,3,3-tetrafluoro- (9CI) (CA INDEX NAME)



IT 2730-43-0, 1-Chloro-3,3,
3-trifluoropropene
RL: RCT (Reactant); RACT (Reactant or reagent)
(process for manufacturing 1,3,3,3-
tetrafluoropropene by fluorination of 1-
chloro-3,3,3-
trifluoropropene)
RN 2730-43-0 HCAPLUS
CN 1-Propene, 1-chloro-3,3,3-trifluoro- (9CI) (CA INDEX NAME)



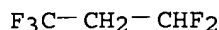
IT 7664-39-3, Hydrogen fluoride, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(titanium or chromium in process for manufacturing 1,3,
3,3-tetrafluoropropene by fluorination of
1-chloro-3,3,3-
trifluoropropene)
RN 7664-39-3 HCAPLUS
CN Hydrofluoric acid (8CI, 9CI) (CA INDEX NAME)

HF

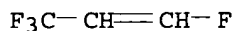
L27 ANSWER 3 OF 21 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2002:260176 HCAPLUS
DOCUMENT NUMBER: 136:300251
TITLE: Method of reactivating catalyst
INVENTOR(S): Kaneda, Shozo; Ishihara, Akira; Sakyu, Fuyuhiko;
Hibino, Yasuo
PATENT ASSIGNEE(S): Central Glass Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002102708	A2	20020409	JP 2000-298231	20000929

PRIORITY APPLN. INFO.: JP 2000-298231 20000929
 AB The invention relates to a reactivation of an SbCl₅ catalyst supported on an activated charcoal. The catalyst is used for fluorination reactions carried out at low temps. The process comprises contacting the deactivated SbCl₅ catalyst with Cl₂ gas at ≥150°. After contacting with Cl₂ gas, the deactivated catalyst may contact HF gas. The catalyst is used for the reaction of 1-chloro-3,3,3-trifluoropropane and 1,3,3,3-tetrafluoropropene to form 1,1,1,3,3-pentafluoropropane.
 IT 460-73-1P, 1,1,1,3,3-Pentafluoropropane.
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (reactivation antimony pentachloride fluoronation catalyst)
 RN 460-73-1 HCAPLUS
 CN Propane, 1,1,1,3,3-pentafluoro- (6CI, 8CI, 9CI) (CA INDEX NAME)



IT 1645-83-6, 1,3,3,3-Tetrafluoropropene
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reactivation antimony pentachloride fluoronation catalyst)
 RN 1645-83-6 HCAPLUS
 CN 1-Propene, 1,3,3,3-tetrafluoro- (9CI) (CA INDEX NAME)



IT 7664-39-3, Hydrogen fluoride, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (reactivation antimony pentachloride fluoronation catalyst)
 RN 7664-39-3 HCAPLUS
 CN Hydrofluoric acid (8CI, 9CI) (CA INDEX NAME)

HF

L27 ANSWER 4 OF 21 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2001:416870 HCAPLUS
 DOCUMENT NUMBER: 135:21209
 TITLE: Process for the production of halogenofluorocarbons with relatively low corrosion of metal reactor
 INVENTOR(S): Takubo, Seiji; Shibata, Noriaki; Nakada, Tatsuo; Shibamura, Takashi
 PATENT ASSIGNEE(S): Daikin Industries, Ltd., Japan
 SOURCE: PCT Int. Appl., 33 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001040151	A1	20010607	WO 2000-JP8141	20001120
W: JP, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
EP 1234810	A1	20020828	EP 2000-976339	20001120
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR				
US 6521802	B1	20030218	US 2002-148415	20020529
PRIORITY APPLN. INFO.:			JP 1999-337759	A 19991129
			WO 2000-JP8141	W 20001120

OTHER SOURCE(S): MARPAT 135:21209

AB The process is carried out by fluorinating a halogenated hydrocarbon in a reaction system containing an antimony halide of $\text{SbCl}_p\text{F}_{5-p}$ ($p = 0-2$) (e.g., SbF_5), HF, and the halogenated hydrocarbon (e.g., $\text{CCl}_3\text{CH}_2\text{CHCl}_2$) serving as the starting material with the molar ratio of the antimony halide to HF being set in the range of 40/60 to 90/10. The halogenofluorocarbons (HFC) important as the substitute for CFC or HCFC can be highly selectively and economically produced with decreased corrosion of the reactor.

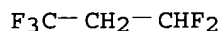
IT 460-73-1P 1645-83-6P

RL: IMF (Industrial manufacture); PREP (Preparation)

(process for the production of halogenofluorocarbons with relatively low corrosion of metal reactor)

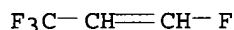
RN 460-73-1 HCAPLUS

CN Propane, 1,1,1,3,3-pentafluoro- (6CI, 8CI, 9CI) (CA INDEX NAME)



RN 1645-83-6 HCAPLUS

CN 1-Propene, 1,3,3,3-tetrafluoro- (9CI) (CA INDEX NAME)



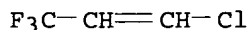
IT 2730-43-0 7664-39-3, Hydrogen fluoride, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(process for the production of halogenofluorocarbons with relatively low corrosion of metal reactor)

RN 2730-43-0 HCAPLUS

CN 1-Propene, 1-chloro-3,3,3-trifluoro- (9CI) (CA INDEX NAME)



RN 7664-39-3 HCAPLUS

CN Hydrofluoric acid (8CI, 9CI) (CA INDEX NAME)

HF

REFERENCE COUNT:

3

THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L27 ANSWER 5 OF 21 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2001:224485 HCAPLUS

DOCUMENT NUMBER: 134:222426

TITLE: Process for preparation of 1,1,
1,3,3-**pentafluoropropane**

INVENTOR(S): Yu, Xiaohua; Du, Guohao; Sun, Gengsheng

PATENT ASSIGNEE(S): Zhejiang Provincial Chemical Engineering Research
Inst., Peop. Rep. China

SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 9 pp.

CODEN: CNXXEV

DOCUMENT TYPE: Patent

LANGUAGE: Chinese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1266045	A	20000913	CN 2000-101468	20000121
CN 1120826	B	20030910		

PRIORITY APPLN. INFO.: CN 2000-101468 20000121

OTHER SOURCE(S): CASREACT 134:222426

AB The process comprises fluorinating 1,1,1,3,3- pentachloropropane with HF in the presence of 0.02-0.06% catalyst I and catalyst adjuvant at 30-150°, separating in HCl separation tower to remove HCl gas, fluorinating again at 150-300° in fixed- bed reactor packed with catalyst II, washing with water and alkaline solution, chlorinating at 15-80° under illuminating, washing with water and alkaline solution, drying, and rectifying. The catalyst I is SbCl₅ and/or SbCl₃; and the catalyst II is the mixture of AlF₃ and Cr(OH)₃. The catalyst adjuvant is chlorosulfonic acid or fluorosulfonic acid. The mole ratio of 1,1,1,3,3-pentachloropropane to HF is 1:7.0-8.5.

IT **7664-39-3, Hydrofluoric acid, reactions**
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (process for preparation of 1,1,1,3,
3-pentafluoropropane)

RN 7664-39-3 HCAPLUS

CN Hydrofluoric acid (8CI, 9CI) (CA INDEX NAME)

HF

IT **1645-83-6P 2730-43-0P, 1-Chloro-
3,3,3-trifluoropropene**
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
 (Reactant or reagent)
 (process for preparation of 1,1,1,3,
3-pentafluoropropane)

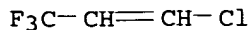
RN 1645-83-6 HCAPLUS

CN 1-Propene, 1,3,3,3-tetrafluoro- (9CI) (CA INDEX NAME)

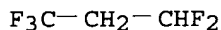
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RN 2730-43-0 HCAPLUS

CN 1-Propene, 1-chloro-3,3,3-trifluoro- (9CI) (CA INDEX NAME)



IT 460-73-1P, 1,1,1,3,
3-Pentafluoropropane
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (process for preparation of 1,1,1,3,
3-pentafluoropropane)
 RN 460-73-1 HCAPLUS
 CN Propane, 1,1,1,3,3-pentafluoro- (6CI, 8CI, 9CI) (CA INDEX NAME)



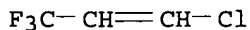
L27 ANSWER 6 OF 21 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2000:316662 HCAPLUS
 DOCUMENT NUMBER: 132:310008
 TITLE: Process and catalysts for preparing chlorofluorinated
 propanes from **hydrogen fluoride**
 and chlorofluoropropanes
 INVENTOR(S): Boyce, C. Bradford; Belter, Randolph K.; Parker, Terry
 PATENT ASSIGNEE(S): Laroche Industries, Inc., USA
 SOURCE: U.S., 3 pp.
 CODEN: USXXAM
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

has ✓

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6063970	A	20000516	US 1998-168240	19981008
PRIORITY APPLN. INFO.:			US 1998-168240	19981008
OTHER SOURCE(S):		MARPAT 132:310008		

AB **1-Chloro-1,3,3,3-tetrafluoropropane, 1-chloro-1,3,3-trifluoropropane, or 1,1-dichloro-1,3,3,3-tetrafluoropropane** are prepared in high yield and selectivity by reacting a chlorinated fluoropropene $\text{CHaF}_3\text{-aCH:CHcCl}_2\text{-c}$ (a = 0-2; c = 0-1) (e.g., **1-chloro-1,3,3,3-tetrafluoropropene**) with anhydrous **hydrogen fluoride** and a catalyst selected from halides of tantalum, vanadium, and mixts. for a time and at a temperature sufficient to form the chlorofluoropropanes.

IT 2730-43-0, **1-Chloro-3,3,3-trifluoropropene 7664-39-3, Hydrogen fluoride, reactions**
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (process and catalysts for preparing chlorofluorinated propanes from **hydrogen fluoride** and chlorofluoropropanes)
 RN 2730-43-0 HCAPLUS
 CN 1-Propene, 1-chloro-3,3,3-trifluoro- (9CI) (CA INDEX NAME)



RN 7664-39-3 HCAPLUS

CN Hydrofluoric acid (8CI, 9CI) (CA INDEX NAME)

HF

REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L27 ANSWER 7 OF 21 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2000:137249 HCAPLUS

DOCUMENT NUMBER: 132:180279

TITLE: Preparation of fluoropropanes from halopropanes or
halopropenes

INVENTOR(S): Hibino, Yasuo; Ishihara, Akira; Kaneda, Shozo

PATENT ASSIGNEE(S): Central Glass Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000063301	A2	20000229	JP 1998-231968	19980818
PRIORITY APPLN. INFO.:			JP 1998-231968	19980818

OTHER SOURCE(S): CASREACT 132:180279; MARPAT 132:180279

AB C3H_jF_kX_l (X = Cl, Br, I; j = 1-6; k = 2-7; l = 0-5; j + k + l = 8), useful
as blowing agents and refrigerants (no data), are prepared by gas-phase
fluorination of C3H_aF_bX_c or C3H_dF_eX_f (X = same as above; a, f = 1-6; b =
0-6; c = 1-7; a + b + c = 8; d, e = 0-5; d + e + f = 6) by HF in the
presence of Group IVa, IVb, Va, Vb, or VIb (other than Sb) metal halides
as catalysts supported on activated C. Cl3CCH2CHCl2, HF, and Cl were
passed through a reactor packed with TiCl4/C at 180° to give
F3CCH2CHF2, F3CCH2CHFCl, and F3CCH2CHCl2.

IT 460-73-1P, 1,1,1,3,

3-Pentafluoropropane

RL: IMF (Industrial manufacture); PREP (Preparation)
(preparation of fluoropropanes)

RN 460-73-1 HCAPLUS

CN Propane, 1,1,1,3,3-pentafluoro- (6CI, 8CI, 9CI) (CA INDEX NAME)

F₃C-CH₂-CHF₂

IT 1645-83-6, 1,3,3,3-

Tetrafluoropropene 2730-43-0, 1-Chloro

-3,3,3-trifluoropropene

7664-39-3, Hydrogen fluoride, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

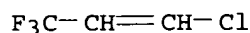
(preparation of fluoropropanes)

RN 1645-83-6 HCAPLUS

CN 1-Propene, 1,3,3,3-tetrafluoro- (9CI) (CA INDEX NAME)

F₃C-CH=CH-F

RN 2730-43-0 HCAPLUS
 CN 1-Propene, 1-chloro-3,3,3-trifluoro- (9CI) (CA INDEX NAME)



RN 7664-39-3 HCAPLUS
 CN Hydrofluoric acid (8CI, 9CI) (CA INDEX NAME)

HF

L27 ANSWER 8 OF 21 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1999:626154 HCAPLUS

DOCUMENT NUMBER: 131:242970

TITLE: Process for producing 1,1,
 1,3,3-

pentafluoropropane

INVENTOR(S): Yamamoto, Akinori; Shibata, Noriaki; Nakada, Tatsuo;
 Shibamura, Takashi

PATENT ASSIGNEE(S): Daikin Industries Ltd., Japan

SOURCE: PCT Int. Appl., 23 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9948849	A1	19990930	WO 1999-JP537	19990205
W: CN, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
JP 11269105	A2	19991005	JP 1998-73626	19980323
JP 3518321	B2	20040412		
EP 1067106	A1	20010110	EP 1999-902854	19990205
R: BE, DE, ES, FR, GB, IT				
US 6472573	B1	20021029	US 2000-601511	20000802
PRIORITY APPLN. INFO.:			JP 1998-73626	A 19980323
			WO 1999-JP537	W 19990205

AB A process for producing 1,1,1,3,
3-pentafluoropropane (HFC-245fa)
 which comprises: a first step in which 1-chloro-
3,3,3-trifluoropropene (1233zd) is
 reacted with **hydrogen fluoride** in a gas phase to
 mainly obtain 1,3,3,3-
tetrafluoropropene (1234ze); and a second step in which the
 1,3,3,3-**tetrafluoropropene**
 (1234ze) is separated as an ingredient containing no hydrogen chloride from the
 crude composition obtained in the first step and reacted with **hydrogen**
fluoride in a gas phase to obtain 1,1,
 1,3,3-**pentafluoropropane (**
HFC-245fa). The process does not necessitate separation of
 the **HFC-245fa** from the 1233zd. Thus, **HFC-**
245fa can be economically produced.

IT 460-73-1P, 1,1,1,3,

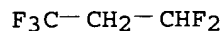
3-Pentafluoropropane

RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)

(preparation of 1,1,1,3,3-pentafluoropropane)

RN 460-73-1 HCAPLUS

CN Propane, 1,1,1,3,3-pentafluoro- (6CI, 8CI, 9CI) (CA INDEX NAME)



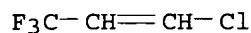
IT 2730-43-0, 1-Propene, 1-chloro-3,3,3-trifluoro-

RL: RCT (Reactant); RACT (Reactant or reagent)

(preparation of 1,1,1,3,3-pentafluoropropane)

RN 2730-43-0 HCAPLUS

CN 1-Propene, 1-chloro-3,3,3-trifluoro- (9CI) (CA INDEX NAME)



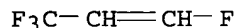
IT 1645-83-6P, 1,3,3,3-Tetrafluoropropene

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation of 1,1,1,3,3-pentafluoropropane)

RN 1645-83-6 HCAPLUS

CN 1-Propene, 1,3,3,3-tetrafluoro- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L27 ANSWER 9 OF 21 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1999:576671 HCAPLUS

DOCUMENT NUMBER: 131:171865

TITLE: Method and catalysts for producing fluorinated propane

INVENTOR(S): Hibino, Yasuo; Tamai, Ryouichi; Kaneda, Shouzou

PATENT ASSIGNEE(S): Central Glass Company, Limited, Japan

SOURCE: Eur. Pat. Appl., 19 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
EP 939071	A1	19990901	EP 1999-103578	19990224
EP 939071	B1	20030730		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2000007591	A2	20000111	JP 1999-27999	19990205

JP 3031464	B2	20000410		
JP 2000143561	A2	20000523	JP 1999-353925	19990205
JP 3154702	B2	20010409		
JP 2000007592	A2	20000111	JP 1999-48203	19990225
JP 3031465	B2	20000410		
PRIORITY APPLN. INFO.:			JP 1998-45088	A 19980226
			JP 1998-109586	A 19980420
			JP 1999-27999	A3 19990205

OTHER SOURCE(S): MARPAT 131:171865

AB An industrial-scale method for producing a fluorinated propane (e.g., 1,1,1,3,3-pentafluoropropane) comprises: (a) fluorinating a halogenated propane (e.g., 1,1,1,3,3-pentachloropropane) and/or a halogenated propene with HF in the gas phase in the presence of a first fluorination catalyst (e.g., fluorinated alumina) to produce a reaction gas containing a fluorinated propene (e.g., 1-chloro-3,3,3-trifluoropropene or 1,3,3,3-tetrafluoropropene); and (b) fluorinating the fluorinated propene with HF in the gas phase by transferring the reaction gas from step (a) to a reaction zone in which a second fluorination catalyst having an activated carbon support of a halide of a high-valence metal (e.g., SbCl₅) is present to obtain the fluorinated propane.

IT 460-73-1P, 1,1,1,3,3-Pentafluoropropane 99728-16-2P 102687-65-0P

RL: IMF (Industrial manufacture); PREP (Preparation)
(method and catalysts for producing fluorinated propane)

RN 460-73-1 HCAPLUS

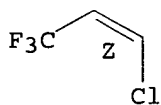
CN Propane, 1,1,1,3,3-pentafluoro- (6CI, 8CI, 9CI) (CA INDEX NAME)

F₃C-CH₂-CHF₂

RN 99728-16-2 HCAPLUS

CN 1-Propene, 1-chloro-3,3,3-trifluoro-, (1Z)- (9CI) (CA INDEX NAME)

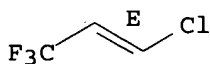
Double bond geometry as shown.



RN 102687-65-0 HCAPLUS

CN 1-Propene, 1-chloro-3,3,3-trifluoro-, (1E)- (9CI) (CA INDEX NAME)

Double bond geometry as shown.

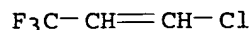


IT 2730-43-0P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(method and catalysts for producing fluorinated propane)

RN 2730-43-0 HCAPLUS

CN 1-Propene, 1-chloro-3,3,3-trifluoro- (9CI) (CA INDEX NAME)



IT 7664-39-3, Hydrogen fluoride, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (method and catalysts for producing fluorinated propane)
 RN 7664-39-3 HCAPLUS
 CN Hydrofluoric acid (8CI, 9CI) (CA INDEX NAME)

HF

REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L27 ANSWER 10 OF 21 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1999:417973 HCAPLUS

DOCUMENT NUMBER: 131:87657

TITLE: Preparation of 1,1,1,
 3,3-pentafluoropropane and
 its intermediate

INVENTOR(S): Nakata, Tatsuo; Shibata, Noriaki; Shibamura, Satoshi

PATENT ASSIGNEE(S): Daikin Industries, Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11180908	A2	19990706	JP 1997-350829	19971219
PRIORITY APPLN. INFO.:			JP 1997-350829	19971219

OTHER SOURCE(S): CASREACT 131:87657

AB CF₃CH₂CHF₂ (I), useful as a Freon substitute, is prepared by treating CCl₃CH₂CHCl₂ (II) with HF in the absence of catalysts and fluorinating the resulting intermediates mainly containing CF₃CH:CHCl (III) and CF₃CH:CHF. II was autoclaved with HF at 200° and 100 kg/cm² for 5 h to give a product containing 82.76% III. The product gas was passed through a reactor packed with fluorinated Cr catalyst (prepared by treating Cr nitrate with NH₃, calcining the resulting Cr hydroxide at 400°, and then fluorinating the calcined product) at 250° to give a product gas containing 53.38% I.

IT 1645-83-6P 2730-43-0P

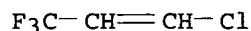
RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (preparation of pentafluoropropane by two-step fluorination of pentachloropropane via trifluorochloropropene and/or tetrafluoropropene)

RN 1645-83-6 HCAPLUS

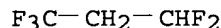
CN 1-Propene, 1,3,3,3-tetrafluoro- (9CI) (CA INDEX NAME)



RN 2730-43-0 HCAPLUS
CN 1-Propene, 1-chloro-3,3,3-trifluoro- (9CI) (CA INDEX NAME)



IT 460-73-1P, 1,1,1,3,3-Pentafluoropropane
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)
(preparation of pentafluoropropane by two-step fluorination of pentachloropropane via trifluorochloropropene and/or tetrafluoropropene)
RN 460-73-1 HCAPLUS
CN Propane, 1,1,1,3,3-pentafluoro- (6CI, 8CI, 9CI) (CA INDEX NAME)



IT 7664-39-3, Hydrogen fluoride, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of pentafluoropropane by two-step fluorination of pentachloropropane via trifluorochloropropene and/or tetrafluoropropene)
RN 7664-39-3 HCAPLUS
CN Hydrofluoric acid (8CI, 9CI) (CA INDEX NAME)

HF

L27 ANSWER 11 OF 21 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1999:273587 HCAPLUS
DOCUMENT NUMBER: 130:268843
TITLE: Two-step process for the preparation of 1,1,1,3,3-pentafluoropropane from 1,1,1-trifluoro-3-chloro-2-propene
INVENTOR(S): Elsheikh, Maher Y.; Bolmer, Michael S.; Chen, Bin
PATENT ASSIGNEE(S): Elf Atochem North America, Inc., USA
SOURCE: U.S., 3 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5895825	A	19990420	US 1997-980747	19971201
EP 919529	A1	19990602	EP 1998-309797	19981130
EP 919529	B1	20011010		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 11228461	A2	19990824	JP 1998-339093	19981130
MX 9810077	A	20000831	MX 1998-10077	19981130

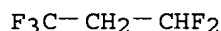
ES 2163236	T3	20020116	ES 1998-309797	19981130
CN 1221722	A	19990707	CN 1998-123057	19981201
CN 1136174	B	20040128		

PRIORITY APPLN. INFO.: US 1997-980747 A 19971201

AB A process for preparing 1,1,1,3,3-pentafluoropropane (I), a blowing agent and refrigerant (no data), comprises: (A) fluorinating 1,1,1-trifluoro-3-chloro-2-propene with **hydrogen fluoride** in a first reaction zone to produce a mixture containing 1,1,1,3-tetrafluoro-2-propene (II); and (B) separating the 1,1,1,3-tetrafluoro-2-propene from the reaction mixture and hydrofluorinating it with **hydrogen fluoride** in a second reaction zone to I. The process advantages are that the II intermediate has a b.p. 35° lower than that of 1,1,1-trifluoro-3-chloro-2-propene so that it can be readily separated from I via distillation. Further, II readily reacts with HF, so that large excesses of HF are not required in step B, again simplifying recovery.

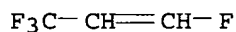
IT 460-73-1P, 1,1,1,3,3-Pentafluoropropane
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (two-step process for the preparation of 1,1,1,3,3-pentafluoropropane from 1,1,1-trifluoro-3-chloro-2-propene)

RN 460-73-1 HCAPLUS
 CN Propane, 1,1,1,3,3-pentafluoro- (6CI, 8CI, 9CI) (CA INDEX NAME)



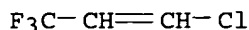
IT 1645-83-6P, 1,1,1,3-Tetrafluoro-2-propene
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
 (two-step process for the preparation of 1,1,1,3,3-pentafluoropropane from 1,1,1-trifluoro-3-chloro-2-propene)

RN 1645-83-6 HCAPLUS
 CN 1-Propene, 1,3,3,3-tetrafluoro- (9CI) (CA INDEX NAME)



IT 2730-43-0, 3-Chloro-1,1,1-Trifluoro-2-propene
 7664-39-3, Hydrogen fluoride, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (two-step process for the preparation of 1,1,1,3,3-pentafluoropropane from 1,1,1-trifluoro-3-chloro-2-propene)

RN 2730-43-0 HCAPLUS
 CN 1-Propene, 1-chloro-3,3,3-trifluoro- (9CI) (CA INDEX NAME)



RN 7664-39-3 HCAPLUS

CN Hydrofluoric acid (8CI, 9CI) (CA INDEX NAME)

HF

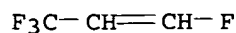
REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L27 ANSWER 12 OF 21 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1999:250261 HCAPLUS
DOCUMENT NUMBER: 130:311526
TITLE: Preparation of halogenated propanes from halogenated
propenes
INVENTOR(S): Tamai, Ryoichi; Yoshikawa, Satoru; Hibino, Yasuo
PATENT ASSIGNEE(S): Central Glass Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

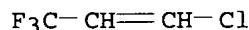
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11106358	A2	19990420	JP 1997-270106	19971002
PRIORITY APPLN. INFO.:			JP 1997-270106	19971002
OTHER SOURCE(S):			CASREACT 130:311526; MARPAT 130:311526	
AB			CF ₃ -bClbCH ₂ CHYZ (Y, Z = F, Cl; b = 0-3), useful as blowing agents, refrigerants, solvents, propellants, etc. (no data), are prepared by reaction of CF ₃ -aClCH:CHX (X = F, Cl; a = 0-3) with HF under pressure in gas phases in the presence of fluorination catalysts. CF ₃ CH:CHCl was treated with HF using Cr/activated C at 270° under 0.5 MPa to give 79.4% CF ₃ CH ₂ CHF ₂ .	
IT			460-73-1P, 1,1,1,3,3-Pentafluoropropane	
RL:			IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)	
			(preparation of fluoropropanes by fluorination of fluoropropenes with metal catalysts supported on base- or acid-treated activated C)	
RN			460-73-1 HCAPLUS	
CN			Propane, 1,1,1,3,3-pentafluoro- (6CI, 8CI, 9CI) (CA INDEX NAME)	

F₃C-CH₂-CHF₂

IT 1645-83-6, 1,3,3,3-Tetrafluoropropene 2730-43-0, 1-Chloro-3,3,3-trifluoro-1-propene 7664-39-3, Hydrogen fluoride, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of fluoropropanes by fluorination of fluoropropenes with metal catalysts supported on base- or acid-treated activated C)
RN 1645-83-6 HCAPLUS
CN 1-Propene, 1,3,3,3-tetrafluoro- (9CI) (CA INDEX NAME)



RN 2730-43-0 HCAPLUS
 CN 1-Propene, 1-chloro-3,3,3-trifluoro- (9CI) (CA INDEX NAME)



RN 7664-39-3 HCAPLUS
 CN Hydrofluoric acid (8CI, 9CI) (CA INDEX NAME)

HF

L27 ANSWER 13 OF 21 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1998:621173 HCAPLUS

DOCUMENT NUMBER: 129:230447

TITLE: Process for producing 1,1,
 1,3,3-

pentafluoropropane

INVENTOR(S): Nakada, Tatsuo; Yamamoto, Akinori; Shibata, Noriaki;
 Shibamura, Takashi

PATENT ASSIGNEE(S): Daikin Industries Ltd., Japan

SOURCE: PCT Int. Appl., 23 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9840335	A1	19980917	WO 1998-JP932	19980305
W: US				
RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
JP 10309464	A2	19981124	JP 1997-134897	19970526
PRIORITY APPLN. INFO.:			JP 1997-57561	A 19970312
			JP 1997-134897	A 19970526

OTHER SOURCE(S): CASREACT 129:230447

AB A tetrahalogenopropane as a starting material is chlorofluorinated by reacting it preferably with chlorine and **hydrofluoric acid** in the presence of a metal catalyst to thereby obtain 1,1,1,3,3-

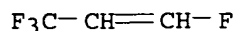
pentafluoropropane. Thus, 1,1,1,3,3-**pentafluoropropane** is easily produced from a material which is available or can be synthesized inexpensively.

IT 1645-83-6P 2730-43-0P

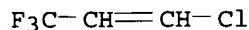
RL: BYP (Byproduct); PREP (Preparation)
 (process for producing 1,1,1,3,3-**pentafluoropropane**)

RN 1645-83-6 HCAPLUS

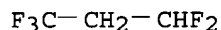
CN 1-Propene, 1,3,3,3-tetrafluoro- (9CI) (CA INDEX NAME)



RN 2730-43-0 HCAPLUS
 CN 1-Propene, 1-chloro-3,3,3-trifluoro- (9CI) (CA INDEX NAME)



IT 460-73-1P, 1,1,1,3,
 3-Pentafluoropropane
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (process for producing 1,1,1,3,
 3-pentafluoropropane)
 RN 460-73-1 HCAPLUS
 CN Propane, 1,1,1,3,3-pentafluoro- (6CI, 8CI, 9CI) (CA INDEX NAME)



REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L27 ANSWER 14 OF 21 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 1998:618407 HCAPLUS
 DOCUMENT NUMBER: 129:218231
 TITLE: Process and catalysts for the gas-phase fluorination
 of 1,1,3,3-tetrachloro-2-propene with **hydrogen
 fluoride** in the high-yield manufacture of
 1,1,1,3,
 3-pentafluoropropane and its
 synthetic precursors
 INVENTOR(S): Elsheikh, Maher Y.
 PATENT ASSIGNEE(S): Elf Atochem North America, Inc., USA
 SOURCE: U.S., 3 pp.
 CODEN: USXXAM
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5811603	A	19980922	US 1997-980746	19971201
CA 2233528	C	20011023	CA 1998-2233528	19980521
CA 2233528	AA	19990601		
JP 11199529	A2	19990727	JP 1998-160016	19980526
EP 919527	A1	19990602	EP 1998-304230	19980528
EP 919527	B1	20020220		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
CN 1218789	A	19990609	CN 1998-109486	19980528
CN 1136172	B	20040128		
ES 2172086	T3	20020916	ES 1998-304230	19980528
PRIORITY APPLN. INFO.:			US 1997-980746	A 19971201
AB 1,1,1,3,3-				
Pentafluoropropane, useful as a foam-blowing agent (no data) and				

refrigerant (no data), and its synthetic precursors 1,1,1-trifluoro-3-chloro-2-propene and 1,1,1,3-

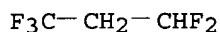
tetrafluoro-2-propene, are prepared in high yield and without oligomer formation by the gas-phase fluorination of 1,1,3,3-tetrachloro-2-propene with HF in the presence of an aluminum fluoride or chromium-based (e.g., HF-activated Cr₂O₃) fluorination catalyst, followed by product separation

IT 460-73-1P, 1,1,1,3,
3-Pentafluoropropane 1645-83-6P
2730-43-0P

RL: IMF (Industrial manufacture); PREP (Preparation)
(process and catalysts for the gas-phase fluorination of
1,1,3,3-tetrachloro-2-propene with **hydrogen fluoride**
in the high-yield manufacture of 1,1,1,
3,3-pentafluoropropane and its synthetic
precursors)

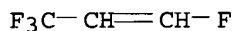
RN 460-73-1 HCAPLUS

CN Propane, 1,1,1,3,3-pentafluoro- (6CI, 8CI, 9CI) (CA INDEX NAME)



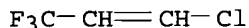
RN 1645-83-6 HCAPLUS

CN 1-Propene, 1,3,3,3-tetrafluoro- (9CI) (CA INDEX NAME)



RN 2730-43-0 HCAPLUS

CN 1-Propene, 1-chloro-3,3,3-trifluoro- (9CI) (CA INDEX NAME)



IT 7664-39-3, **Hydrogen fluoride**, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)
(process and catalysts for the gas-phase fluorination of
1,1,3,3-tetrachloro-2-propene with **hydrogen fluoride**
in the high-yield manufacture of 1,1,1,
3,3-pentafluoropropane and its synthetic
precursors)

RN 7664-39-3 HCAPLUS

CN Hydrofluoric acid (8CI, 9CI) (CA INDEX NAME)

HF

REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L27 ANSWER 15 OF 21 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1998:62263 HCAPLUS

DOCUMENT NUMBER: 128:90318

TITLE: Vapor-phase fluorination process and catalysts for the
manufacture of 1,1,1,
3,3-pentafluoropropane

INVENTOR(S): Tung, Hsueh Sung
 PATENT ASSIGNEE(S): Alliedsignal Inc., USA
 SOURCE: U.S., 5 pp.
 CODEN: USXXAM
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5710352	A	19980120	US 1996-716013	19960919
WO 9812161	A1	19980326	WO 1997-US16966	19970919
W: JP, KR				
RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
EP 931043	A1	19990728	EP 1997-942663	19970919
EP 931043	B1	20030813		
R: DE, ES, FR, GB, IT, NL				
JP 2001500882	T2	20010123	JP 1998-514990	19970919
JP 3393142	B2	20030407		
ES 2137143	T3	20040501	ES 1997-942663	19970919
PRIORITY APPLN. INFO.:			US 1996-716013	A 19960919
			WO 1997-US16966	W 19970919

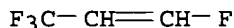
AB In the title process, 1,1,1,3, 3-pentafluoropropane (HFC-245fa) is prepared by the vapor-phase fluorination of 1,1,1,3,3-pentachloropropane (HCC-240fa) with HF in the presence of a Group IVB or VB metal halide catalyst. The byproducts, 1-chloro-3, 3,3-trifluoropropene and 1,3,3,3-tetrafluoropropene, are distilled from the HFC-245fa and recycled for further HF fluorination thus producing a >99% HCC-240fa conversion. The title vapor-phase fluorination process is less corrosive than a comparable liquid-phase process.

IT 1645-83-6P, 1,3,3,3-Tetrafluoropropene 2730-43-0P
 RL: BYP (Byproduct); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(vapor-phase fluorination process and catalysts for the manufacture of 1,1,1,3,3-pentafluoropropane)

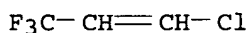
RN 1645-83-6 HCAPLUS

CN 1-Propene, 1,3,3,3-tetrafluoro- (9CI) (CA INDEX NAME)



RN 2730-43-0 HCAPLUS

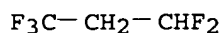
CN 1-Propene, 1-chloro-3,3,3-trifluoro- (9CI) (CA INDEX NAME)



IT 460-73-1P, 1,1,1,3, 3-Pentafluoropropane

RL: IMF (Industrial manufacture); PREP (Preparation)
 (vapor-phase fluorination process and catalysts for the manufacture of 1,1,1,3,3-pentafluoropropane)

RN 460-73-1 HCAPLUS
CN Propane, 1,1,1,3,3-pentafluoro- (6CI, 8CI, 9CI) (CA INDEX NAME)



IT 7664-39-3, Hydrogen fluoride, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(vapor-phase fluorination process and catalysts for the manufacture of
1,1,1,3,3-
pentafluoropropane)

RN 7664-39-3 HCAPLUS
CN Hydrofluoric acid (8CI, 9CI) (CA INDEX NAME)

HF

REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L27 ANSWER 16 OF 21 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1998:56058 HCAPLUS

DOCUMENT NUMBER: 128:114713

TITLE: Preparation of 1,1,1,
3,3-pentafluoropropane

INVENTOR(S): Saku, Fuyuhiko; Hibino, Yasuo

PATENT ASSIGNEE(S): Central Glass Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 3

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 10017502	A2	19980120	JP 1996-171097	19960701
US 6111150	A	20000829	US 1996-764496	19961212
PRIORITY APPLN. INFO.:			JP 1996-159998	A 19960620
			JP 1996-159999	A 19960620
			JP 1996-171097	A 19960701

OTHER SOURCE(S): CASREACT 128:114713

AB Title compound (I), useful as blowing agent for polyurethane foams and
refrigerant (no data), is prepared by addition of 1,3,
3,3-tetrafluoropropene (II) with HF in the
presence of halogenated hydrogenation catalysts. II was treated with HF
in the presence of SbCl₅ at 50° for 3.5 h to give I with 98%
selectivity.

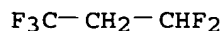
IT 460-73-1P, 1,1,1,3,
3-Pentafluoropropane

RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP
(Preparation)

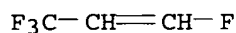
(preparation of pentafluoropropane by addition of tetrafluoropropene with HF
using catalysts)

RN 460-73-1 HCAPLUS

CN Propane, 1,1,1,3,3-pentafluoro- (6CI, 8CI, 9CI) (CA INDEX NAME)



IT 1645-83-6, 1,3,3,3-
Tetrafluoropropene 7664-39-3, Hydrogen
 fluoride, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (preparation of pentafluoropropane by addition of tetrafluoropropene with HF
 using catalysts)
 RN 1645-83-6 HCAPLUS
 CN 1-Propene, 1,3,3,3-tetrafluoro- (9CI) (CA INDEX NAME)



RN 7664-39-3 HCAPLUS
 CN Hydrofluoric acid (8CI, 9CI) (CA INDEX NAME)

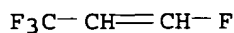
HF

L27 ANSWER 17 OF 21 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 1998:38666 HCAPLUS
 DOCUMENT NUMBER: 128:101817
 TITLE: Preparation of 1,3,3,
 3-**tetrafluoropropene**
 INVENTOR(S): Yoshikawa, Satoshi; Tamai, Yoshikazu; Hibino, Yasuo
 PATENT ASSIGNEE(S): Central Glass Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 3
 PATENT INFORMATION:

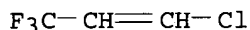
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 10007604	A2	19980113	JP 1996-159998	19960620
JP 3465865	B2	20031110		
US 6111150	A	20000829	US 1996-764496	19961212
PRIORITY APPLN. INFO.:			JP 1996-159998	A 19960620
			JP 1996-159999	A 19960620
			JP 1996-171097	A 19960701

AB The compound (I), useful as a refrigerant and intermediate for drugs and agrochemicals, etc., is prepared by gas-phase reaction of ClCH:CHCF₃ (II) with HF in the presence of fluorination catalysts. HF/N and II were passed through a reactor packed with Cr₂O₃/C pretreated with HF at 400° for 3 h to give 6.0 g product containing 73.0% I.

IT 1645-83-6P, 1,3,3,3-
Tetrafluoropropene
 RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP
 (Preparation)
 (preparation of tetrafluoropropene by catalytic fluorination of
 chlorotrifluoropropene with HF)
 RN 1645-83-6 HCAPLUS
 CN 1-Propene, 1,3,3,3-tetrafluoro- (9CI) (CA INDEX NAME)



IT 2730-43-0, 1-Propene, 1-chloro-
 3,3,3-trifluoro- 7664-39-3
 , Hydrogen fluoride, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (preparation of tetrafluoropropene by catalytic fluorination of
 chlorotrifluoropropene with HF)
 RN 2730-43-0 HCAPLUS
 CN 1-Propene, 1-chloro-3,3,3-trifluoro- (9CI) (CA INDEX NAME)



RN 7664-39-3 HCAPLUS
 CN Hydrofluoric acid (8CI, 9CI) (CA INDEX NAME)

HF

L27 ANSWER 18 OF 21 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1997:678659 HCAPLUS

DOCUMENT NUMBER: 127:346115

TITLE: Preparation of 1,1,1,
 3,3-pentafluoropropane

INVENTOR(S): Tamai, Ryoichi; Yoshikawa, Satoru; Saku, Fuyuhiko;
 Hibino, Yasuo

PATENT ASSIGNEE(S): Central Glass Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 09268139	A2	19971014	JP 1996-81556	19960403
PRIORITY APPLN. INFO.:			JP 1996-81556	19960403

OTHER SOURCE(S): CASREACT 127:346115

AB 1,1,1,3,3-

Pentafluoropropane (I), a known foaming agent for polyurethanes and refrigerant, is prepared by reacting 1,1,1,3,3-pentachloropropane (II) with HF in the gas phase in the presence of a fluorination catalyst. Thus, an aqueous solution of $\text{CrCl}_3 \cdot 6\text{H}_2\text{O}$ was mixed with γ -alumina; after filtration, the γ -alumina was dried and heated at 300° under nitrogen and then under a mixture of nitrogen and HF; finally, the resulting powder was heated at 450° for 1 h to give a catalyst. Reaction of II with HF in the gas phase at 450° in the presence of the above catalyst gave a product containing 13.6% I and other byproducts.

IT 1645-83-6P, 1,3,3,3-

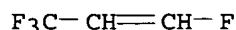
Tetrafluoropropene 2730-43-0P

RL: BYP (Byproduct); PREP (Preparation)

(preparation of pentafluoropropane)

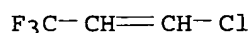
RN 1645-83-6 HCAPLUS

CN 1-Propene, 1,3,3,3-tetrafluoro- (9CI) (CA INDEX NAME)



RN 2730-43-0 HCAPLUS

CN 1-Propene, 1-chloro-3,3,3-trifluoro- (9CI) (CA INDEX NAME)



IT 460-73-1P, 1,1,1,3,
3-Pentafluoropropane

RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP
(Preparation)
(preparation of pentafluoropropane)

RN 460-73-1 HCAPLUS

CN Propane, 1,1,1,3,3-pentafluoro- (6CI, 8CI, 9CI) (CA INDEX NAME)



IT 7664-39-3, Hydrogen fluoride, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of pentafluoropropane)

RN 7664-39-3 HCAPLUS

CN Hydrofluoric acid (8CI, 9CI) (CA INDEX NAME)

HF

L27 ANSWER 19 OF 21 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1997:481000 HCAPLUS

DOCUMENT NUMBER: 127:95018

TITLE: Process for producing 1,1,
1,3,3-
pentafluoropropane by fluorination of
1,1,1,3,3-pentachloropropane

INVENTOR(S): Nakada, Tatsuo; Aoyama, Hirokazu; Yamamoto, Akinori

PATENT ASSIGNEE(S): Daikin Industries Ltd., Japan

SOURCE: PCT Int. Appl., 18 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9724307	A1	19970710	WO 1996-JP2942	19961008
W:	AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, KE, KG, KR, KZ, LK, LR, LT, LU, LV, MD, MG, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TT, UA, US, UZ, VN			
RW:	KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR,			

IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML,
MR, NE, SN, TD, TG

JP 09183740	A2	19970715	JP 1995-354118	19951229
CA 2241131	AA	19970710	CA 1996-2241131	19961008
CA 2241131	C	20011204		
AU 9672275	A1	19970728	AU 1996-72275	19961008
AU 704997	B2	19990513		
EP 877009	A1	19981111	EP 1996-933611	19961008
EP 877009	B1	20020403		
R: BE, DE, ES, FR, GB, IT, NL				
CN 1206394	A	19990127	CN 1996-199419	19961008
CN 1067043	B	20010613		
BR 9612297	A	19990713	BR 1996-12297	19961008
ES 2174108	T3	20021101	ES 1996-933611	19961008
CN 1224410	A	19990728	CN 1997-196154	19970321
US 6018084	A	20000125	US 1998-91820	19980625
PRIORITY APPLN. INFO.:			JP 1995-354118	A 19951229
			WO 1996-JP2942	W 19961008

OTHER SOURCE(S): CASREACT 127:95018

AB Characterized is a process for producing 1,1,1,3,3,3-pentafluoropropane (I) using fluorination catalyst which involves (1) gas-phase reacting 1,1,1,3,3-pentachloropropane with HF to thereby give 1,1,1-trifluoro-3-chloro-2-propene (II); and (2) gas-phase reacting II with HF to thereby give I; wherein II obtained in the first step is fed into the second step after eliminating HCl formed as the byproduct therefrom. Thus, an economical and novel process for producing I, which is an useful as foaming and blowing agents, can be provided in a high yield with a good selectivity.

IT 1645-83-6P 2730-43-0P

RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(process for producing 1,1,1,3,3-pentafluoropropane by fluorination of 1,1,1,3,3-pentachloropropane)

RN 1645-83-6 HCAPLUS

CN 1-Propene, 1,3,3,3-tetrafluoro- (9CI) (CA INDEX NAME)

$\text{F}_3\text{C}-\text{CH}=\text{CH}-\text{F}$

RN 2730-43-0 HCAPLUS

CN 1-Propene, 1-chloro-3,3,3-trifluoro- (9CI) (CA INDEX NAME)

$\text{F}_3\text{C}-\text{CH}=\text{CH}-\text{Cl}$

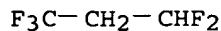
IT 460-73-1P, 1,1,1,3,3-Pentafluoropropane

RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)

(process for producing 1,1,1,3,3-pentafluoropropane by fluorination of 1,1,1,3,3-pentachloropropane)

RN 460-73-1 HCAPLUS

CN Propane, 1,1,1,3,3-pentafluoro- (6CI, 8CI, 9CI) (CA INDEX NAME)



IT 7664-39-3, Hydrogen fluoride, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (process for producing 1,1,1,3,3-pentafluoropropane by fluorination of
 1,1,1,3,3-pentachloropropane)
 RN 7664-39-3 HCAPLUS
 CN Hydrofluoric acid (8CI, 9CI) (CA INDEX NAME)

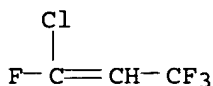
HF

L27 ANSWER 20 OF 21 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 1952:5631 HCAPLUS
 DOCUMENT NUMBER: 46:5631
 ORIGINAL REFERENCE NO.: 46:1022g-i
 TITLE: Hydrofluorination of halogenated olefins
 INVENTOR(S): Arnold, Robert C.
 DOCUMENT TYPE: Patent
 LANGUAGE: Unavailable
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2560838		19510717	US	

AB Halogenated olefins are fluorinated with anhydrous HF in the presence of BF₃ (I) by using approx. 0.5 mole of the olefin to 1 mole HF with from 0.5 to 25 g. I in a closed vessel at 30-160°. E.g. when 40 g. HF was added to 131.5 g. CHCl:CCl₂ in an autoclave cooled to -30°, the vessel closed, 12 g. I added from a cylinder by means of a needle valve, the valve closed, the charge heated 24 hrs. to 95°, the vessel cooled in ice water, the contents poured over cracked ice, the mixture neutralized with NaOH, the organic material separated by steam distillation, dried over CaCl₂, fractionated, the olefin in the fraction distilling at 85-8° destroyed with permanganate solution, CH₂ClCCl₂F was obtained in 56.5% yield and a difluorinated product in 9% yield. With 40 g. HF, 0.5 mole olefin, and varying amts. of I, the following conversions are reported: 25.5% CH₂ClCHClF from (:CHCl)₂ and 12 g. I, 9.5% with 3 g. I, and 21.4% with 6 g. I; 35.0% MeCClFCH₂Cl and 4.4% MeCF₂CH₂Cl from MeCCl:CHCl with 2 g. I; 12.3% CHCl₂CCl₂F from (:CCl₂)₂ with 24 g. I and only 6.4% with 6 g. I; 12.0% CF₃CHClCCl₂F from CF₃CCl:CCl₂ with g. I, but only 8% with 10 g. I; 70.0% CF₃CH₂CClF₂ from CF₃CH:CClF with 3 g. I.

IT 460-71-9, Propene, 1-chloro-1,3,3,3-tetrafluoro-
 (reaction (addition) with HF)
 RN 460-71-9 HCAPLUS
 CN 1-Propene, 1-chloro-1,3,3,3-tetrafluoro- (9CI) (CA INDEX NAME)



IT 7664-39-3, **Hydrofluoric acid**
 (reaction with olefins)
 RN 7664-39-3 HCAPLUS
 CN Hydrofluoric acid (8CI, 9CI) (CA INDEX NAME)

HF

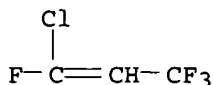
L27 ANSWER 21 OF 21 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 1948:18889 HCAPLUS
 DOCUMENT NUMBER: 42:18889
 ORIGINAL REFERENCE NO.: 42:4034g-i,4035a-c
 TITLE: Hydrofluorination in the presence of boron fluoride
 AUTHOR(S): Henne, Albert L.; Arnold, Robert C.
 CORPORATE SOURCE: Ohio State Univ., Columbus
 SOURCE: Journal of the American Chemical Society (1948), 70,
 758-60
 CODEN: JACSAT; ISSN: 0002-7863

DOCUMENT TYPE: Journal
 LANGUAGE: Unavailable

GI For diagram(s), see printed CA Issue.

AB The authors studied the addition of HF to $\text{CHCl}:\text{CCl}_2$, $\text{CHCl}:\text{CHCl}$, $\text{CF}_2:\text{CCl}_2$, $\text{CFCl}:\text{CFCl}$, $\text{CFCl}:\text{CCl}_2$, $\text{CCl}_2:\text{CCl}_2$, $\text{CHCl}:\text{CF}_2$, $\text{CF}_3\text{CCl}:\text{CCl}_2$, $\text{CF}_3\text{CH}:\text{CClF}$, $\text{CH}_3\text{CH}:\text{CHCl}$, and $\text{CH}_3\text{CCl}:\text{CHCl}$. The addition is accelerated or made possible by using small amts. of BF_3 as a catalyst. The observed results were explained by the formation of a coordinated complex $\text{HF} \rightarrow \text{BF}_3$, which enhances the ionic character of the H-F bond; this facilitates the separation of H as a proton, and makes it more available for addition to the more neg. of the double-bonded carbons. In support of this interpretation is the opposite fact that HF addition to alkynes is slowed down by an oxygenated solvent such as ether or acetone; in this case, complex formation with solvent involves H-bonding to the unshared electrons of the O atom and obstructs separation as a proton for the first stage of addition to the C.tplbond.C bond. The direction of addition was always that expected from the ionic character of the olefin. The vinylic halides acted as if entirely in their resonating form: $\text{CH}_2\text{-C:X+H}$, so that RR'C:CR''X leads exclusively to HRR'C:CR''XF+ . By induction a CF_3 group attached to a doubly bonded C atom causes a polarization opposed to that created by a CH_3 group, so that the polarization of **propene** and trifluoropropene could be represented as $\text{CH}_3\text{C+H:C-CH}_2$ and $\text{CF}_3\text{C-H:C+H}_2$, resp. The ease of addition was not determined solely by the extent of polarization of the double bond. The absolute electron d. around the double bond should also be taken into account; if this is done, it is to be expected that all ethylenes bearing a CF_3 group should be slowed down by electron drainage away from the double bond. This explanation is similar to that used for the m-directing effect of an electroneg. group on a benzene ring, and its retarding effect.

IT 460-71-9, **Propene, 1-chloro-**
 1,3,3,3-tetrafluoro-
 (reaction with HF)
 RN 460-71-9 HCAPLUS
 CN 1-Propene, 1-chloro-1,3,3,3-tetrafluoro- (9CI) (CA INDEX NAME)



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L1 21 SEA FILE=REGISTRY ABB=ON PLU=ON C3H2F4/MF
 L2 3 SEA FILE=REGISTRY ABB=ON PLU=ON L1 AND 1 (W) 3 (W) 3 (W) 3 (W) TETRAFLUORO?
 L3 15 SEA FILE=REGISTRY ABB=ON PLU=ON C3H2CLF3/MF
 L4 3 SEA FILE=REGISTRY ABB=ON PLU=ON L3 AND 3 (W) 3 (W) 3 (W) TRIFLUORO? AND 1 (W) CHLORO?
 L5 15 SEA FILE=REGISTRY ABB=ON PLU=ON C3HCLF4/MF
 L6 3 SEA FILE=REGISTRY ABB=ON PLU=ON L5 AND 1 (W) 3 (W) 3 (W) 3 (W) TETRAFLUORO? AND 1 (W) CHLORO?
 L7 7 SEA FILE=REGISTRY ABB=ON PLU=ON C3H3F5/MF
 L8 1 SEA FILE=REGISTRY ABB=ON PLU=ON L7 AND 1 (W) 1 (W) 1 (W) 3 (W) 3 (W) PENTAFLUORO?
 L9 108 SEA FILE=HCAPLUS ABB=ON PLU=ON L2 OR (1 (W) 3 (W) 3 (W) 3 (W) TETRAFLUORO? AND PROPEN?)
 L10 SEL PLU=ON L2 1- CHEM : 9 TERMS
 L11 64 SEA FILE=HCAPLUS ABB=ON PLU=ON L10
 L12 113 SEA FILE=HCAPLUS ABB=ON PLU=ON L11 OR L9
 L13 SEL PLU=ON L4 1- CHEM : 7 TERMS
 L14 69 SEA FILE=HCAPLUS ABB=ON PLU=ON L13
 L15 140 SEA FILE=HCAPLUS ABB=ON PLU=ON L14 OR (1 (W) CHLORO?) (L) (3 (W) 3 (W) 3 (W) TRIFLUORO?)
 L16 SEL PLU=ON L6 1- CHEM : 4 TERMS
 L17 12 SEA FILE=HCAPLUS ABB=ON PLU=ON L16
 L18 29 SEA FILE=HCAPLUS ABB=ON PLU=ON L17 OR (1 (W) CHLORO?) (L) (3 (W) 3 (W) 3 (W) TETRAFLUORO?)
 L19 SEL PLU=ON L8 1- CHEM : 9 TERMS
 L20 652 SEA FILE=HCAPLUS ABB=ON PLU=ON L19
 L21 831 SEA FILE=HCAPLUS ABB=ON PLU=ON L20 OR (1 (W) 1 (W) 1 (W) 3 (W) 3 (W) PENTAFLUORO?)
 L22 46 SEA FILE=HCAPLUS ABB=ON PLU=ON L12 AND (L15 OR L18 OR L21)
 L23 39 SEA FILE=REGISTRY ABB=ON PLU=ON HYDROGEN FLUORIDE?/CN
 L24 SEL PLU=ON L23 1- CHEM : 173 TERMS
 L25 46497 SEA FILE=HCAPLUS ABB=ON PLU=ON L24
 L26 46497 SEA FILE=HCAPLUS ABB=ON PLU=ON L25 OR HYDROGEN (W) FLUORIDE?
 L27 21 SEA FILE=HCAPLUS ABB=ON PLU=ON L22 AND L26
 L29 1341 SEA FILE=REGISTRY ABB=ON PLU=ON SODIUM HYDROXIDE?/CN OR POTASSIUM HYDROXIDE?/CN OR CALCIUM OXIDE?/CN OR CALCIUM DIHYDROXIDE?/CN OR CALCIUM HYDROXIDE?/CN OR CALCIUM OXIDE?
 L30 1372 SEA FILE=REGISTRY ABB=ON PLU=ON L29 OR CAUSTIC
 L31 740910 SEA FILE=HCAPLUS ABB=ON PLU=ON L30 OR (SODIUM OR POTASSIUM OR CALCIUM) (W) ?HYDROXIDE? OR CALCIUM (W) OXIDE? OR KOH OR NaOH OR CAO OR CAO H
 L32 11 SEA FILE=HCAPLUS ABB=ON PLU=ON (L22 AND L31) NOT L27

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L32 ANSWER 1 OF 11 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2003:242042 HCAPLUS
 DOCUMENT NUMBER: 138:255639
 TITLE: Process for producing fluoroolefins

INVENTOR(S): Nair, Haridasan K.; Van der Puy, Michael; Nalewajek, David; Demmin, Timothy R.; Poss, Andrew J.; Bradley, David E.; Shankland, Ian R.
 PATENT ASSIGNEE(S): USA
 SOURCE: U.S. Pat. Appl. Publ., 6 pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

State

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003060670	A1	20030327	US 2001-962974	20010925
US 6548719	B2	20030415		
WO 2003027051	A1	20030403	WO 2002-US30353	20020925
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW			
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
EP 1430011	A1	20040623	EP 2002-773563	20020925
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK			
JP 2005504097	T2	20050210	JP 2003-530643	20020925
PRIORITY APPLN. INFO.:			US 2001-962974	A 20010925
			WO 2002-US30353	W 20020925

OTHER SOURCE(S): MARPAT 138:255639

AB A process for producing a fluoroolefin of the formula: $CF_3CY: CX_nHp$ wherein Y = hydrogen atom or a halogen atom (i.e., fluorine, chlorine, bromine, or iodine); X = a hydrogen atom or a halogen atom (i.e., fluorine, chlorine, bromine, or iodine); n and p = integers 0, 1, or 2, provided that (n + p) = 2; comprising contacting, in the presence of a phase transfer catalyst, a compound of the formula: $CF_3C(R_1aR_2b)C(R_3cR_4d)$, wherein R₁, R₂, R₃, and R₄ = independently a hydrogen atom or a halogen selected from the group consisting of fluorine, chlorine, bromine, and iodine, provided that at least one of R₁, R₂, R₃, and R₄ = halogen and there is at least one hydrogen and one halogen on adjacent carbon atoms; a and b are independently = 0, 1, or 2 and (a + b) = 2; and c and d = 0, 1, 2, or 3 and (c + d) = 3; and at least one alkali metal hydroxide. The alkali metal hydroxide can be, for example, potassium or sodium hydroxide and the phase transfer catalyst can be, for example, at least one: crown ether such as 18-crown-6 and 15-crown-5; or onium salt such as, quaternary phosphonium salt and quaternary ammonium salt. The olefin is useful, for example, as an intermediate for producing other industrial chems. and as a monomer for producing oligomers and polymers.

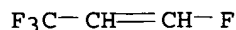
IT 1310-58-3, Potassium hydroxide, uses
 RL: CAT (Catalyst use); USES (Uses)
 (process for producing fluoroolefins)

RN 1310-58-3 HCAPLUS

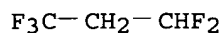
CN Potassium hydroxide (K(OH)) (9CI) (CA INDEX NAME)

K-OH

IT 1645-83-6P
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (process for producing fluoroolefins)
 RN 1645-83-6 HCAPLUS
 CN 1-Propene, 1,3,3,3-tetrafluoro- (9CI) (CA INDEX NAME)



IT 460-73-1, HFC-245fa
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (process for producing fluoroolefins)
 RN 460-73-1 HCAPLUS
 CN Propane, 1,1,1,3,3-pentafluoro- (6CI, 8CI, 9CI) (CA INDEX NAME)



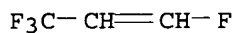
L32 ANSWER 2 OF 11 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2000:68192 HCAPLUS
 DOCUMENT NUMBER: 132:93787
 TITLE: Dehydrofluorination process and catalysts for the
 preparation of 1,1,1,
 3-tetrafluoro-2-
 propenes from 1,1,
 1,3,3-
 pentafluoropropane
 INVENTOR(S): Elsheikh, Maher Yousef; Fellenger, Paul David
 PATENT ASSIGNEE(S): Elf Atochem North America, Inc., USA; Atofina
 Chemicals
 SOURCE: Eur. Pat. Appl., 3 pp.
 CODEN: EPXXDW
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 974571	A2	20000126	EP 1999-305781	19990721
EP 974571	A3	20000412		
EP 974571	B1	20030423		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
US 6124510	A	20000926	US 1998-119560	19980721
JP 2000063300	A2	20000229	JP 1999-204714	19990719
AT 238258	E	20030515	AT 1999-305781	19990721
PT 974571	T	20030731	PT 1999-305781	19990721
ES 2195520	T3	20031201	ES 1999-305781	19990721
PRIORITY APPLN. INFO.:			US 1998-119560	A 19980721

AB Mixts. of cis- and trans-1,1,1,3-
 tetrafluoro-2-propene are prepared in high yield
 and selectivity by: (A) contacting 1,1,1,
 3,3-pentafluoropropane with an alkaline solution,
 preferably an aqueous or alc. solution of a base such as KOH,
 NaOH, Ca(OH)₂ or Mg(OH)₂, or with a chromium-based catalyst, such

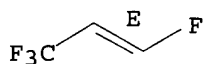
as fluorided Cr₂O₃ or fluorided Cr/Ni/AlF₃; and (B) recovering the cis/trans-1,1,1,3-tetrafluoro-2-propene isomer mixture from the reaction mixture

IT 1645-83-6P, 1,1,1,3-Tetrafluoro-2-propene 29118-24-9P, trans-1,3,3,3-Tetrafluoropropene 29118-25-0P, 1-Propene, 1,3,3,3-tetrafluoro-, (1Z)-
 RL: IMF (Industrial manufacture); PREP (Preparation) (dehydrofluorination process and catalysts for the preparation of 1,1,1,3-tetrafluoropropenes from 1,1,1,3,3-pentafluoropropane)
 RN 1645-83-6 HCAPLUS
 CN 1-Propene, 1,3,3,3-tetrafluoro- (9CI) (CA INDEX NAME)



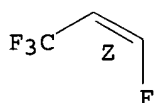
RN 29118-24-9 HCAPLUS
 CN 1-Propene, 1,3,3,3-tetrafluoro-, (1E)- (9CI) (CA INDEX NAME)

Double bond geometry as shown.

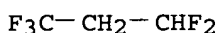


RN 29118-25-0 HCAPLUS
 CN 1-Propene, 1,3,3,3-tetrafluoro-, (1Z)- (9CI) (CA INDEX NAME)

Double bond geometry as shown.



IT 460-73-1, 1,1,1,3,3-Pentafluoropropane 1305-62-0, Calcium hydroxide, reactions 1310-58-3, Potassium hydroxide, reactions 1310-73-2, Sodium hydroxide, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent) (dehydrofluorination process and catalysts for the preparation of 1,1,1,3-tetrafluoropropenes from 1,1,1,3,3-pentafluoropropane)
 RN 460-73-1 HCAPLUS
 CN Propane, 1,1,1,3,3-pentafluoro- (6CI, 8CI, 9CI) (CA INDEX NAME)



RN 1305-62-0 HCAPLUS
 CN Calcium hydroxide (Ca(OH)₂) (9CI) (CA INDEX NAME)

HO-Ca-OH

RN 1310-58-3 HCAPLUS
 CN Potassium hydroxide (K(OH)) (9CI) (CA INDEX NAME)

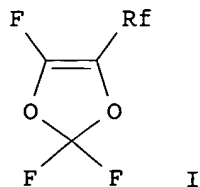
K-OH

RN 1310-73-2 HCAPLUS
 CN Sodium hydroxide (Na(OH)) (9CI) (CA INDEX NAME)

Na-OH

L32 ANSWER 3 OF 11 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 1999:557721 HCAPLUS
 DOCUMENT NUMBER: 131:170741
 TITLE: New perfluorodioxoles, their preparation and their copolymers
 INVENTOR(S): Russo, Antonio; Navarrini, Walter
 PATENT ASSIGNEE(S): Ausimont S.p.A., Italy
 SOURCE: Eur. Pat. Appl., 16 pp.
 CODEN: EPXXDW
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 937720	A1	19990825	EP 1999-101399	19990126
EP 937720	B1	20020619		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
IT 1298257	B1	19991220	IT 1998-MI291	19980217
US 6335408	B1	20020101	US 1999-249853	19990216
US 6469185	B1	20021022	US 2001-880863	20010615
US 2002183471	A1	20021205		
PRIORITY APPLN. INFO.:			IT 1998-MI291	A 19980217
			US 1999-249853	A3 19990216
OTHER SOURCE(S):		MARPAT 131:170741		
GI				



AB Perfluoro-4-alkyl-1,3-dioxoles having the general formula I (Rf = C1-5

perfluoroalkyl) allow preparation of copolymers with Tg higher than those of copolymers containing the same molar percentage of the usual fluorinated dioxoles. Thus, reaction of CH₂:CF₂ with CF₂BrCl at 110°/20 atm in the presence of tert-Bu₂O₂ gave 62% BrCF₂CH₂CF₂Cl, which was dehydrobrominated with KOH and isomerized with AlCl₃ to CF₃CH:CFCl (mixture of cis and trans isomers); the CF₃CH:CFCl underwent cyclization with CF₂(OF)₂ and the product was dehydrochlorinated to I (Rf = CF₃) (II). A 30:70 II-C₂F₄ copolymer showed Tg 92° and 10% weight loss at 495°.

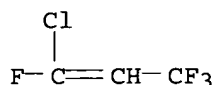
IT 460-71-9P, 1-Chloro-1,3,
3,3-tetrafluoro-1-propene

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(preparation of perfluorinated alkyldioxoles and their copolymers)

RN 460-71-9 HCAPLUS

CN 1-Propene, 1-chloro-1,3,3,3-tetrafluoro- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L32 ANSWER 4 OF 11 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1961:27441 HCAPLUS

DOCUMENT NUMBER: 55:27441

ORIGINAL REFERENCE NO.: 55:5323g-i,5324a-d

TITLE: Substitution and addition reactions of the fluoroolefins. IV. Reactions of fluoride ion with fluoroolefins

AUTHOR(S): Miller, William T., Jr.; Fried, John H.; Goldwhite, Harold

CORPORATE SOURCE: Cornell Univ., Ithaca, NY

SOURCE: Journal of the American Chemical Society (1960), 82, 3091-9

CODEN: JACSAT; ISSN: 0002-7863

DOCUMENT TYPE: Journal

LANGUAGE: Unavailable

OTHER SOURCE(S): CASREACT 55:27441

AB cf. CA 54, 8592b. Fluoride ion reacts readily with fluoroolefins by 3 paths: (1) substitution of vinyl halogen, (2) substitution of allyl halogen with rearrangement, and (3) addition to form a fluorocarbanion. An example of (1) is the reaction of 1,2-dichlorotetrafluoropropene with KF-HCONH₂ to give 55% 2-chloro-1,1,1,3,3,3-hexafluoropropane. Examples of (2) are the reactions of 3,3-dichloro-1,1,3-trifluoropropene with KF-HCONH₂ to give 90% 1-chloro-1,3,3,3-tetrafluoropropene and with Et₄NF in CHCl₃ to give 74% 1-chloro-1,3,3,3-tetrafluoropropene, 1,3-dichloro-1,2,3,3-tetrafluoropropene with KF-HCONH₂ at 60° to give 52% 1,1,1,2,3,3,3-heptafluoropropene, 2,3-dichloro-1,1,3,3-tetrafluoropropene with Et₄NF in CHCl₃ at 0° to give 52% 2-chloropentafluoropropene in 5 min., and the F ion catalyzed rearrangement of perfluoro-1-heptene to give isomeric olefins. Preferential substitution of allyl, rather than vinyl, halogen is shown by the reaction of 1,4-dibromohexafluoro-2-butene with excess F ion at 60° to give octafluoro-2-butene and its HF addition product. Examples of (3) are the reactions of KF-HCONH₂ with

chlorotrifluoroethylene to give 72% chlorotetrafluoroethane, with perfluoropropene at 25° to give 60% 1,1,1,2,3,3,3-heptafluoropropane, with perfluoropropene at 65° to give 21% 1,1,1,2,3,3,3-heptafluoropropane, with 2-chloro-1,1,3,3,3-pentafluoropropene at 25° to give 61% 2-chloro-1,1,1,3,3,3-hexafluoropropene, and with perfluoro-2-butene at 81° to give 35% 1,1,1,2,2,3,4,4,4-nonafluorobutane. CCl₂FI (209 g.) is charged into a steel lecture cylinder fitted with a steel valve, which is cooled with dry ice, and 60 g. CH₂:CF₂ condensed into it at 2.5 atmospheric. The cylinder is sealed and heated to 125 ± 5° 19 hrs., then cooled, and vented to yield 12 g. unreacted olefin and by distillation CCl₂FCH₂CF₂I (295 g. from 2 runs), b₁₃ 39°, n_{20D} 1.4655, d. 2.0978. In the same equipment 316 g. CCl₃I and 65 g. CH₂:CF₂ at 115 ± 5° 36 hrs. give 2 g. olefin and 264 g. CCl₃CH₂CF₂I, b₂₉ 83-4°, b₂₂ 78.3-8.5°, f.p. -37.5°, n_{20D} 1.5089, d. 2.1157, MRD 43.67, λ_{maximum} 270 mμ (ε 379), λ_{min.} 234 mμ (ε 87) (0.67 g./l., iso-octane), coupled by Zn in Et₂O to give 88% C₆H₄Cl₆F₄, chlorinated to give C₆Cl₁₀F₄, presumably CCl₃CCl₂CF₂CF₂-CCl₂CCl₃, m. 116.7-18.0°. CCl₃CH₂CF₂I (155 g.) in 400 ml. peroxide-free diethylene glycol di-Et ether is dehydrohalogenated by 57 g. KOH in 70 ml. H₂O under N at 150° to give 28.5 g. CCl₂:CHCClF₂, redistd. through a 100 cm. spinning band column, b₇₄₉ 95.5°, f.p. -96.5°, n_{20D} 1.4290, d. 1.5208, MRD 30.8. Photochem. chlorination at atmospheric pressure of 16.1

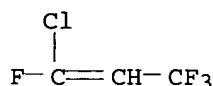
g.

CCl₂:CHCClF₂ gives 16.0 g. CCl₃CHCl-CClF₂, b₇₄₆ 168-9°, n_{20D} 1.4610, d. 1.725, MRD 40.2. CCl₂:CHCClF₂ (2 g.) is chlorinated with 3 g. Cl in the presence of 2.5 g. H₂O to give 3.05 g. CCl₃CCl₂CClF₂, m. 51.0-1.2°. Pyrolysis of chlorotrifluoroethylene gives a dichlorotetrafluoropropene fraction, b. 44-9°, which is photochem. brominated, debrominated with Zn in dioxane, treated with LiCl in Me₂CO, and then with excess NaI in Me₂CO to give CClF:CFCClF₂, b₇₃₃ 47.0-8.0°, b. 47.5°, n_{20D} 1.3527, d. 1.5335. CClF₂CF:CFCClF₂ (1 mole) is fluorinated by heating with 2 moles HgO and 4.5 moles HF at 110° 4 hrs. in a steel bomb to give 73% octafluoro-2-butene.

IT 460-71-9, Propene, 1-chloro-
1,3,3,3-tetrafluoro-
(preparation of)

RN 460-71-9 HCAPLUS

CN 1-Propene, 1-chloro-1,3,3,3-tetrafluoro- (9CI) (CA INDEX NAME)



L32 ANSWER 5 OF 11 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1961:2127 HCAPLUS

DOCUMENT NUMBER: 55:2127

ORIGINAL REFERENCE NO.: 55:349c-g

TITLE: Reactions of fluoro olefins. XIII. Catalytic hydrogenation of perfluoro olefins

AUTHOR(S): Knunyants, I. L.; Krasuskaya, M. P.; Mysov, E. I.

CORPORATE SOURCE: Inst. Heteroorg. Compds., Moscow

SOURCE: Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya (1960) 1412-18

CODEN: IASKA6; ISSN: 0002-3353

DOCUMENT TYPE: Journal

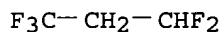
LANGUAGE: Unavailable

AB cf. CA 53, 1102b; 54, 20871c. Hydrogenation of C₂F₄ over reduced Ni catalyst at 158° in a flow system gave 66% C₂H₂F₄ and 14% C₂H₃F₃; over 1% Pd-Al₂O₃ at 90° there was formed 97.3% CHF₂CHF₂. Hydrogenation (over Pd-Al₂O₃) of CF₂:CFCl at room temperature gave 75.5% mixed (CHF₂)₂ and CF₂:CHF. CF₃CF:CF₂ over Pd-Al₂O₃ at 50° gave 96% 1,1,2,3,3,3-hexafluoropropane, b. 4-5°. (CF₃)₂C:CF₂ similarly gave at 60° 85% 1,1,3,3,3-pentafluoro-2-trifluoromethylpropane (I), b. 33-4°, d₂₀ 1.558; reaction over Ni at 130° gave 10% of this product and 70% 3,3,3-trifluoro-2-trifluoromethylpropane, b. 21°. I warmed with 30% aqueous KOH gave 76% 1,3,3,3-tetrafluoro-2-trifluoromethyl-1-propene (II), b. 17-8°, which with KMnO₄ gave (CF₃)₂CO. Hydrogenation of II over Pd-Al₂O₃ at room temperature gave the saturated analog, 80%, b. 39-40°, which with powdered KOH in Bu₂O at 50° gave 70% 3,3,3-trifluoro-2-trifluoromethyl-1-propene, b. 13-4°, while the use of 90% KOH at 170° gave 54% 1,1,3,3,3-pentafluoro-2-methyl-1-propene, b. 12-3°. Reaction of 1,1,2,3,3,3-hexafluoropropane with powdered KOH in Bu₂O with ice cooling gave 60% 1,2,3,3,3-pentafluoro-1-propene, b. -20° which hydrogenated over Pd-Al₂O₃ at room temperature to 60% saturated analog (III), b. 20°, and 30% 2,3,3,3-tetrafluoropropane, b. -1°. III and KOH in Bu₂O gave 70% 2,3,3,3-tetrafluoro-1-propene, b. -28°. Hydrogenation of 1,1,3,3,3-pentafluoro-1-propene over Pd-Al₂O₃ at room temperature gave 70% saturated analog, b. 12°, while treatment of the former with KOH in Bu₂O gave 70% 1,3,3,3-tetrafluoro-1-propene, b. -16°. Hydrogenation of perfluorobutadiene over Pd-Al₂O₃ at room temperature gave 66% 1,1,2,3,4,4-hexafluorobutane, b. 63-5°, n_{20D} 1.2985, which heated with powdered KOH 1.5 hrs. gave 85% 1,1,2,4,4-pentafluoro-2-butene, b. 56°, n_{20D} 1.306 (which with KMnO₄ gave CHF₂CO₂H); bromination of this olefin gave 45% dibromide, m. 146-8°.

IT 460-73-1, Propane, 1,1,1,3,3-pentafluoro- 1645-83-6, Propene, 1,3,3,3-tetrafluoro- (preparation of)

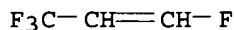
RN 460-73-1 HCAPLUS

CN Propane, 1,1,1,3,3-pentafluoro- (6CI, 8CI, 9CI) (CA INDEX NAME)



RN 1645-83-6 HCAPLUS

CN 1-Propene, 1,3,3,3-tetrafluoro- (9CI) (CA INDEX NAME)



L32 ANSWER 6 OF 11 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1960:44037 HCAPLUS

DOCUMENT NUMBER: 54:44037

ORIGINAL REFERENCE NO.: 54:8592b-e

TITLE: Substitution and addition reactions of the fluoroolefins. III. SN₂' substitution reactions of chlorofluoroallyl chlorides with halide ions

AUTHOR(S): Fried, John H.; Miller, William T., Jr.
 CORPORATE SOURCE: Cornell Univ., Ithaca, NY
 SOURCE: Journal of the American Chemical Society (1959), 81,
 2078-82
 CODEN: JACSAT; ISSN: 0002-7863

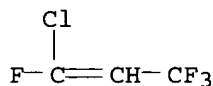
DOCUMENT TYPE: Journal
 LANGUAGE: Unavailable

AB cf. C.A. 52, 1049b. The synthesis of 3,3-dichloro-1,1,3-trifluoropropene (I) and 3,3-dichloro-tetrafluoropropene (II) is reported. These compds. undergo substitution reactions with F-, Cl-, and I-. Since the products are rearranged it is known that an SN2' type reaction occurred. The order or reactivity is opposite to that normally encountered in nucleophile substitution. FCl₂CCH₂CF₂I was prepared from 0.56 mole CCl₂FI, 2.8 g. Bz₂O₂, and 0.56 mole CH₂:CF₂. The reaction was conducted at 85° for 15 hrs. in a steel cylinder. The product was isolated by distillation, b. 148°, m. 63.0°, n_{20D} 1.4658, d₂₀ 2.0956, and dehydrohalogenated at 120° by adding 0.4 mole to 2.23 moles anhydrous powdered KOH over a 5-hr. period to give 78% I, b₇₄₁ 52.0-52.2°, m. -103.2°, n_{20D} 1.3702, d₂₀ 1.4504. The other product of the reaction was 1-chloro-1,3,3-trifluoro-3-iodopropane, b₇₀ 41°, n_{20D} 1.4680, d₂₀ 2.0884. II was prepared similarly from 1,1-dichloro-1,2,3,3-tetrafluoro-3-iodopropane and KOH, b₇₃₅ 46°, n_{20D} 1.3556, d₂₀ 1.5378. I and II reacted with KF in formamide to give CF₃CH:CClF and CF₃CF:CClF, resp. Similarly, LiCl and NaI in acetone reacted with I to give the rearranged products, CClF₂CH:CClF, b₇₃₄ 56-8°, n_{20D} 1.3701, d₂₀ 1.459, and CF₂ICH:CClF, b₁₀₀ 51°, n_{20D} 1.4681, d₂₀ 2.0894.

IT 460-71-9, Propene, 1-chloro-
 1,3,3,3-tetrafluoro-
 (preparation of)

RN 460-71-9 HCAPLUS

CN 1-Propene, 1-chloro-1,3,3,3-tetrafluoro- (9CI) (CA INDEX NAME)



L32 ANSWER 7 OF 11 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1954:32422 HCAPLUS

DOCUMENT NUMBER: 48:32422

ORIGINAL REFERENCE NO.: 48:5786h-i,5787a-h

TITLE: The addition of free radicals to unsaturated systems.
 II. Radical addition of olefins of the type RCH:CH₂

AUTHOR(S): Haszeldine, R. N.; Steele, B. R.

CORPORATE SOURCE: Univ. Chem. Lab., Cambridge, UK

SOURCE: Journal of the Chemical Society, Abstracts (1953)
 1199-1206

CODEN: JCSAAZ; ISSN: 0590-9791

DOCUMENT TYPE: Journal

LANGUAGE: Unavailable

AB cf. C.A. 46, 2477f; 47, 1032g. The formation of CF₃CH₂CHIR and not CF₃CH₂CH₂I by addition of CF₃I (I) to RCH:CH₂ [R = Me (II), Cl (III), F (IV), CO₂Me (V), CF₃ (VI), or CN (VII)] shows that orientation in radical addition reactions does not depend on the polarization of the double bond but on other factors such as radical stability. Reaction vessels (30- or 300-ml. Pyrex or 50-ml. silica) were placed 10 cm. from a Hanovia ultraviolet lamp used without the Woods filter. I (24.7 g.) and 5.3 g. II kept in the dark

14 days gave no reaction, but after 14 days in ultraviolet light (with the liquid protected from the light to prevent reaction in the liquid phase or photolysis of the products) fractionation gave 14.6 g. mixture of equal amts. of I and II, liquid products which, shaken with Hg and redistd., yielded 14.9 g. MeCHICH₂CF₃ (VIII), b₇₆₃ 103.5°, n_{20D} 1.4277, and 0.94 g. fraction which, treated 4 days in a Carius tube, gave MeCHBrCH₂Br and CHF₃. VIII (1.7 g.) treated with 30 ml. 10% alc. KOH gave no reaction when stirred 2 hrs. in ice, but yielded 0.61 g. MeCH:CHCF₃, b. 20°, when heated 4 hrs. at 80°. VIII (1.68 g.) and 0.55 g. Cl exposed to sunlight 2 hrs., then to ultraviolet light 1 hr., and shaken with Hg, gave 0.97 g. MeCHClCH₂CF₃, b. 64.5-6.0°, n_{20D} 1.3438. VIII (1.37 g.) refluxed 4 hrs. with 4 g. Zn dust and 30 ml. dilute HCl gave 0.46 g. PrCF₃, b. 18°. I (25.5 g.) and 8.2 g. III (no reaction after 15 days in the dark at room temperature) kept 14 days under ultraviolet light gave 16.6 g. mixture of equal amts. of I and III and 16.8 g. CHClCH₂CF₃ (IX), b. 120°, n_{20D} 1.453. I (7 g.) and 2.3 g. III kept 4 days with only the liquid phase exposed to ultraviolet light gave 3.5 g. recovered I and III, 4.4 g. IX, and 0.8 g. fraction b. 45-90°. I (37.9 g.) and 14.8 g. III heated 4 days at 230-5° in a 300-ml. autoclave gave 3.5 g. HCl, a mixture of 22.4 g. I and 1.7 g. III, 4.5 g. mixture, b. 45-50°, n_{20D} 1.352 [refractionation CH₂ClCH₂CF₃, b₇₇₃ 45.8-6.4°, n_{20D} 1.339, 2 g. of which treated 4 hrs. at 20-40° with 40 ml. 10% alc. KOH, yielded 1.04 g. CH₂:CHCF₃ (X)], 3.4 g. mixture, b. 50-110°, n_{20D} 1.409, and 1.3 g. mixture, b. 110-20°, n_{20D} 1.432, which was mainly IX. CH₂ICH₂CF₃ (1.5 g.) with a slight excess of Br or Cl exposed to ultraviolet light gave 80-90% CH₂BrCH₂CF₃ or Cl analog. IX (1.16 g.) and 0.353 g. Cl kept 12 hrs. in the dark at room temperature gave 0.59 g. CHCl₂CH₂CF₃, b₇₆₆ 72.8-3.4°, n_{20D} 1.363. X (1 g.) and 0.75 g. Cl gave 1.45 g. CH₂ClCHClCF₃, b. 76.6-7.2°, n_{20D} 1.367. IX (1.8 g.) treated 2 hrs. with 40 ml. 10% alc. KOH gave 0.74 g. CHCl:CHCF₃, b. 20.8°. IX (1.3 g.) treated 4 hrs. at about 80° with 4 g. Zn and 25 ml. dilute HCl gave a mixture containing 0.225 g. CH₂ClCH₂CF₃ and 0.065

g.

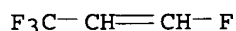
EtCF₃, which could not be separated by distillation, and 0.105 g. EtCF₃, b. -13°. IX (1.14 g.) refluxed 6 hrs. with 4.07 g. Zn and 30 ml. EtOH gave 0.22 g. EtCF₃ and no X. I (17.4 g.) and 4.07 g. IV irradiated 14 days gave 5 g. mixture of equal amts. I and IV, 13.9 g. CHIFCH₂CF₃ (XI), b₇₅₇ 86.2°, n_{20D} 1.4024, and 1.5 g. CHIFCH₂CHFCH₂CF₃, b₂₀ 64°, n_{20D} 1.421. XI (1.9 g.) kept 4 hrs. at 70° with 4 g. Zn and 30 ml. dilute HCl gave 0.72 g. CH₂FCH₂CF₃ (XII), b₇₆₁ 29.4°, b₅₉₀ 23°. XI (2.5 g.) heated 4 hrs. at 60° with 15 ml. 10% alc. KOH gave 0.94 g. CHF:CHCF₃, b. -16°. CH₂ICH₂CF₃ (2 g.) added to 5 g. HgF (dried at 110°) and the mixture refluxed 5 hrs. at 120° gave 0.42 g. XII. XII (0.28 g.) shaken 24 hrs. at 20° with 3 ml. 10% alc. KOH gave 0.219 g. X. I (7.2 g.) and 2 g. V (no reaction in the dark) irradiated 4 days (8 cm. from the ultraviolet source) gave 5.2 g. I, 1.0 g. V, and 2.6 g. CF₃CH₂CHICO₂Me (XIII), b₄₂ 82°, n_{20D} 1.440, which liberates iodine on exposure to light. I (17.9 g.) and 8.38 g. V irradiated 6 days gave XIII and 6 g. polymers (a), b₃ 112°, n_{20D} 1.447 (C 31.5, H 3.1%), and (b), b_{0.1} 138 ± 2°, n_{20D} 1.443 (C 39.0, H 4.2%) {calculated for CF₃[CH₂CH(CO₂Me)]_nI, n = 1, C 21.3, H 2.1%; n = 2, C 29.4, H 3.3%; n = 3, C 34.4, H 4.0%; n = 4, C 37.8, H 4.4%; calculated for (CF₃CH₂CHCO₂Me)₂, C 38.7, H 3.9%}. XIII (0.65 g.) refluxed with 2 g. Zn and 50% H₂SO₄ gave 0.32 g. CF₃CH₂CH₂CO₂H, b₁₂ 70°. Ultraviolet maximum and min. (with e) are given for many compds.; infrared spectra are analyzed. The nature of the reaction is discussed.

IT

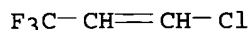
1645-83-6, Propene, 1,3,3,
3-tetrafluoro- 2730-43-0, Propene,

1-chloro-3,3,3-
trifluoro-
(preparation of)

RN 1645-83-6 HCAPLUS
CN 1-Propene, 1,3,3,3-tetrafluoro- (9CI) (CA INDEX NAME)



RN 2730-43-0 HCAPLUS
CN 1-Propene, 1-chloro-3,3,3-trifluoro- (9CI) (CA INDEX NAME)



L32 ANSWER 8 OF 11 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1953:41096 HCAPLUS

DOCUMENT NUMBER: 47:41096

ORIGINAL REFERENCE NO.: 47:6858i,6859a-g

TITLE: Reactions of fluorocarbon radicals. VII. Addition to
trifluoromethyl-substituted acetylene

AUTHOR(S): Haszeldine, R. N.

CORPORATE SOURCE: Univ. Cambridge, UK

SOURCE: Journal of the Chemical Society, Abstracts (1952)
3490-8

CODEN: JCSAAZ; ISSN: 0590-9791

DOCUMENT TYPE: Journal

LANGUAGE: Unavailable

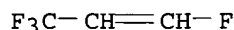
OTHER SOURCE(S): CASREACT 47:41096

AB F3CC.tplbond.CH (I) (0.94 g.) and 10 ml. HF, kept 48 hrs. at room temperature
and

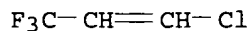
heated 4 hrs. at 60°, give 92% 1,3,3,
3-tetrafluoropropene, b. -16°. I (0.94 g.) and
0.38 g. dry HCl, kept 2 hrs. at room temperature, give 100% F3CCH:CHCl, b.
21°. I and dry HBr, 2 hrs. at 0°, give 100% F3CCH:CHBr
(II), b. 40°; the reaction with AlBr3 at -25° gives 91% II.
I (0.94 g.) and 1.38 g. dry HI at 100° give 65% F3CCH:CHI (III), b.
70-1°; in the presence of 0.25 g. AlI3 (24 hrs. at room temperature), the
products are 17% I, 19% HI, and 80% III; 100% excess HI at 100° in
the presence of AlI3 gives 20% III and 8% F3CCH:CH2. I (0.94 g.), 0.81 g.
anhydrous HCN, 0.1 g. KCN, 0.2 g. KCl, 0.8 g. CuCl, and 10 ml. H2O, heated 24
hrs. at 100°, give 48% unchanged I (36% after 36 hrs. at
120°); the combined liquid phases, heated at 80° with excess
10% NaOH, acidified with H2SO4, and continuously extracted (24 hrs.)
with ether, give 62% γ,γ,γ-trifluorocrotonic acid (IV),
m. 51°. The Na salt (0.4 g.) of IV, 2 g. H3BO3, and 15 ml.
(CH2OH)2, heated 4 hrs. at 150-200°, gives 41% F3CCH:CH2; 123 g. of
the Ag salt and 3 g. powdered iodine, heated at about 10 mm., give 76% III.
IV was prepared in 72% yield from 0.53 g. CH2:CHCN and 8.5 g.
trifluoroiodomethane (irradiated 48 hrs. with ultraviolet light) and the
4,4,4-trifluoro-2-iodobutyronitrile (not isolated pure) heated with 10%
EtOH-KOH 1 hr. at 50°. I and anhydrous HBr do not react
after 36 hrs. in the dark at -60°; irradiation with a Hanovia
ultraviolet light at -60° gives exclusively II. I (1.88 g.) and 25
ml. MeOH containing 0.5 g. Na, kept 3 hrs. at -20°, give 92%
3,3,3-trifluoro-1-methoxypropene (V), b. 83-4°; EtO homolog (VI),
b. 103°, nD25 1.349, 91%; 2 oxidations with alkaline KMnO4 gives 58 and

62% F₃CCO₂H. Hydrogenation of V over Raney Ni (1 hr. at 10-15°) gives 80% CH₄ and 79% F₃CCH₂CHO (VII); VI gives 78% C₂H₆ and 74% VII; no evidence of the formation of F₃Cac was obtained. There was no indication of the addition of 2 moles EtOH to I at 0° in the presence of EtONa (after 7 days). VI (1.7 g.) and 26 ml. EtOH containing 4 g. EtONa, heated 1.5 hrs. at 80° and the product hydrolyzed with H₂SO₄, give 28% F₃CCH₂CHO. I (0.94 g.), 0.02 g. CuCl, and 3 ml. Et₂NH, kept 4 hrs. at room temperature and slowly heated to 100°, give 0.11 g. unchanged I and 28% 1-diethylamino-3,3,3-trifluoropropene, b₁₀₅ 40°. (F₃CC.tplbond.)₂ (VIII) (0.81 g.) and 20% excess HCl in a tube containing 0.1 g. AlCl₃, kept 3 hrs. at room temperature and 30 min. at 50°, give 65% F₃CCH:CClCF₃, b. 34-5°; this was also obtained with 200% excess HCl; with 20% excess HCl in the absence of AlCl₃, the yield is 78% (24 hrs. at 100°). VIII and HBr (7 days in the dark at 30°) give 68% F₃CCH:CB₂CF₃ (IX); under the influence of ultraviolet light (2 hrs.), there results 87% IX and about 5% F₃CCBr:CB₂CF₃. VIII (1.51 g.) and 15 ml. MeOH containing 0.75 g. Na, kept 48 hrs. at 0° and 1 hr. at 30°, give 61% 1,1,1,4,4,4-hexafluoro-2-methoxy-2-butene (X), b. 55-7°; 2-EtO Homolog (XI), b. 72.5-3°, 57%. Oxidation with alkaline KMnO₄ gives F₃CCO₂H. X and Br give a quant. yield of 2,3-dibromo-1,1,1,4,4,4-hexafluoro-2-methoxybutane, b₂₅ 58-9°, n_D20 1.408; 2-EtO homolog, b₃₂ 72-3°, n_D20 1.409. XI (1.65 g.), 1 g. EtONa, and 10 ml. EtOH, heated 1 hr. at 70°, give 59% 2,2-diethoxy-1,1,1,4,4,4-hexafluorobutane (XII), b. 135°, n_D20 1.342; 2,2-di-Me homolog (XIII), b₁₀₀ 50°, 53%. Catalytic reduction of X over Raney Ni (0.5 hr. at room temperature and 0.5 hr. at 120°) gives 58% F₃CCH₂COCF₃ (XIV); XIII, refluxed with 50% H₂SO₄, gives 48% XIV; hydrolysis of XI gives 53% XIV. 2-Diethylamino-1,1,1,4,4,4-hexafluoro-2-butene, b₁₅₀ 72-4°, b₇₆₀ 123°, n_D20 1.371, 57%.

IT 1645-83-6, Propene, 1,3,3,
3-tetrafluoro- 2730-43-0, Propene,
1-chloro-3,3,3-
trifluoro-
(preparation of)
RN 1645-83-6 HCAPLUS
CN 1-Propene, 1,3,3,3-tetrafluoro- (9CI) (CA INDEX NAME)



RN 2730-43-0 HCAPLUS
CN 1-Propene, 1-chloro-3,3,3-trifluoro- (9CI) (CA INDEX NAME)



L32 ANSWER 9 OF 11 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1952:14342 HCAPLUS
DOCUMENT NUMBER: 46:14342
ORIGINAL REFERENCE NO.: 46:2484h-i,2485a-d
TITLE: The preparation of hexafluoroacetone
AUTHOR(S): Henne, Albert L.; Shepard, John W.; Young, Evan J.
CORPORATE SOURCE: Ohio State Univ., Columbus
SOURCE: Journal of the American Chemical Society (1950), 72,
3577-9
CODEN: JACSAT; ISSN: 0002-7863
DOCUMENT TYPE: Journal

LANGUAGE: Unavailable
 OTHER SOURCE(S): CASREACT 46:14342
 AB Repeated chlorination of Me₂C:CHCl, f.p. -78.7°, b. 158°, d₄₂₀ 1.3319, nD₂₀ 1.4980, and its chlorination products, CHCl₂CMe:CH₂, b. 105-28°, CH₂ClCMe:CHCl, b. 128-35°, (CH₂Cl)₂C:CH₂, b. 135-41°, and Me₂CClCH₂Cl, b. 141-7°, gives 43% CH₂ClCMeClCHCl₂, b₂₀ 78-85°. KOH in cold 1:1 MeOH-H₂O gives the lachrymator CH₂ClCMe:CCl₂, which chlorinates to CH₂ClCMeClCCl₃ (I), f.p. 58-63°, b₁₀ 98-102°, b₇₆₀ 205-10°. Removal of HCl gives CCl₃CMe:CHCl, f.p. -70.0°, b. 174.8°, d₄₂₀ 1.4528, nD₂₀ 1.5129, easily hydrolyzed. With SbF₃ this gives 70% CF₃CMe:CHCl (II), f.p. -120.3°, b. 46.4°, d₄₂₀ 1.2395, nD₂₀ 1.3489, A Rf 1.1. It is better to treat I with SbF₃ and Cl at 165° and 10-11 atmospheric to give 40% CF₃CMeClCH₂Cl (III), b. 93.5°, d₄₂₀ 1.3899, nD₂₀ 1.3782, ARf 1.0, together with a mixture of II and CF₃C(CH₂Cl):CH₂, b. 64.1°, d₄₂₀ 1.2824, nD₂₀ 1.3520, ARf 0.9. A 2nd method of preparing III, more suitable for a small-scale synthesis, is from MeMgCl and CF₃CO₂Et to give 97% of the azeotropic mixture EtOHCFC₃(OH)Me₂, b. 75-81°, which over P₂O₅ at 130° gives 97% CF₃CMe:CH₂, b. 6.7°. Chlorination in the dark in the presence of a little FeCl₃ at 0° gives III. III refluxed with alc. KOH gives II, which under the same conditions chlorinates to CF₃CMeClCHCl₂, b. 123.7°, d₄₂₀ 1.5201, nD₂₀ 1.4084, ARf 1.0. Removal of HCl gives CF₃CMe:CCl₂ (IV), b. 88.4°, d₄₂₀ 1.4248, nD₂₀ 1.9947, ARf 1.1. SbF₃ and Cl with HF at 55-130° and 10-20 atmospheric react with IV mixed with the residues from previous runs of this reaction to give (CF₃)₂CHMe (V), f.p. -106.7°, b. 21.5°, d₄₀ 1.3725, nD_{2.9} 1.2717, A Rf 1.1, and some CF₃CHMeCF₂Cl, b. about 55°, and CF₃CHMeCFCl₂, b. about 70°, which are retreated. Chlorination of V goes slowly in ultraviolet light to give (CF₃)₂CHCCl₃ (VI), b. 106.5-7.5°, d₄₂₀ 1.7095, nD₂₀ 1.3690, and [(CF₃)₂CHCCl₂]₂, m. 111.8-12.4°, which loses HCl to give [(CF₃)₂C:CCl]₂, b. 123°, d₄₂₀ 1.6838, nD₂₀ 1.3462, A Rf 1.2. Removal of HCl from VI with KOH in EtOH or MeOH-H₂O below 10° gives 50% (CF₃)₂C:CCl₂ (VII), f.p. -98.2°, b. 74.5°, d₄₂₀ 1.6429, nD₂₀ 1.3517, A Rf 1.2, and an unidentified compound, b. 127-30°, d₄₂₀ 1.4364, nD₂₀ 1.3696. In iso-PrOH only VII is formed. VI with KOH in H₂O-(HOCH₂CH₂)₂O gives 82.5% VII. VII with aqueous acid KMnO₄ gives the hydrate of (CF₃)₂CO, which with P₂O₅ gives the free ketone, b. -26°, and an unidentified liquid whose semicarbazone m. 190°. Properties are reported for CClF₂CMeClCH₂Cl, b. 131-2°, d₄₂₀ 1.4441, nD₂₀ 1.4326, A Rf 0.9; CClF₂CMe:CHCl, b. 86-7°, d₄₂₀ 1.3406, nD₂₀ 1.4023, A Rf 0.8; CF₃CMeClCCl₃, f.p. 115.6-16.4°, b. 148-9°; CF₃CMeClCF₂Cl, b. 75.3°, d₄₂₀ 1.5133, nD₂₀ 1.3440, A Rf 1.1; CF₃CMe:CF₂, b₇₄₅ 12.8-13.5°.

L32 ANSWER 10 OF 11 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1946:14644 HCAPLUS
 DOCUMENT NUMBER: 40:14644
 ORIGINAL REFERENCE NO.: 40:2780h-i,2781a-e
 TITLE: Fluorinated derivatives of propane and propylene. VI
 AUTHOR(S): Henne, Albert L.; Waalkes, T. Phillip
 CORPORATE SOURCE: Ohio State Univ., Columbus
 SOURCE: Journal of the American Chemical Society (1946), 68, 496-7
 CODEN: JACSAT; ISSN: 0002-7863.
 DOCUMENT TYPE: Journal
 LANGUAGE: Unavailable

AB cf. C.A. 40, 829.8. CH₂(CF₃)₂ (I), f.p. -93.62°, b. -0.7°, was synthesized by the following reactions: MeCHClCHCl₂ with alkali gives

88% of MeCH:CCl₂; heating with HF at 100°/20 atmospheric gives 60% of MeCH₂CF₂Cl (II) and 12% of MeCH₂CFCl₂. II and nascent HgF₂ give 90% of MeCH₂CF₃; chlorination yields CF₃CH₂CCl₃ which with HgF₂ gives 84% of I and 5% of CClF₂CH₂CF₃ (III), f.p. -107°, b. 28.4°, d₄₂₀ 1.4372, n_{D20} 1.2875 (all d. and n under these conditions). III with alc. KOH gives 65%, of CF₂:CHCF₃, f.p. -153.11°, b. -21°; this does not add HF at temps. below 100° but above this temperature addition is rapid and quant. MeCH:CF₂, f.p. -160.93°, b. 29°, is not a practical intermediate in the preparation of I. CHCl(CH₂Cl)₂ with alkali gives 80% of CH₂:CClCH₂Cl; HF gives 70% of MeCFClCH₂Cl (MeCF₂CH₂Cl as byproduct); direct chlorination yields MeCFClCCl₃ (IV), dehydrohalogenation of which failed because the hydrolysis of CH₂:CXCCl₃ is much faster than its generation. Partial fluorination of IV gives a mixture of 10% MeCFClCFCl₂ (V), 35% MeCFClCF₂Cl (VI) (f.p. -30.48°, b. 55.6°, d. 1.3956, n 1.3503), and 35% MeCF₂CFCl₂. VI with alkali gives slowly (3 days) CH₂:CFCF₂Cl, f.p. -143.7°, b. 11.9°; V with alkali at 50° gives 40% of CH₂:CFCFCl₂, f.p. -115.9°, b. 54.4°, d. 1.3523, n 1.3851; with SbCl₃ both give CH₂:CFCF₃, f.p. -152.24°, b. -28.3°. MeCFClCH₂Cl is chlorinated in such a manner as to give a mixture of CHCl₂CClFCCl₃ and CH₂ClCClFCCl₃ with which alkali gives a mixture of CCl₂:CFCCl₃, f.p. -77°, b. 171.1°, d. 1.7064, n 1.5026, and CHCl:CFCCl₃, b. 147.8°, d. 1.5877, n 1.4870. With SbF₃ these yield CHCl:CFCF₃, f.p. -115.8°, b. 15°, and CCl₂:CFCF₃, f.p. -139.6°, b. 46.4°, d. 1.5389, n 1.3504, which give a quant. yield of CCl₃CClFCF₃; SbF₃Cl₂ at 180° gives 60% of CF₂ClCFClCF₃ (VII), f.p. -136°, b. 34.7°, d. 1.5896, n 1.3029, and 28% of CFCl₂CFClCF₃, b. 73.5°, d. 1.6643, n 1.3529. Zn treatment of VII in boiling EtOH is slow (3 days) but the reaction proceeds readily under pressure at 100°, giving CF₂:CFCF₃, f.p. -156.2°, b. -29.4°. CH₂ClCH₂CF₃ yields CH₂:CHCF₃, b. -19 to -17°. MeCFClCF₂Cl with Zn, even at 200°, gives only a trace of MeCF:CF₂. CCl₃CCl₂CF₃ with SbF₃ gives CFCl₂CCl₂CF₃ which with Zn gives CFCl:CClCF₃, f.p. -137°, b. 47.3°, d. 1.5468, n 1.3511; PbO₂ and HF give CF₂ClCFClCF₃. CF₂ClCCl₂CF₃ with Zn gives CF₂:CClCF₃ which yields CF₃CFCFClCF₃, b. -2°. HF can be added to MeCH:CF₂ and CF₂:CHCF₃ but not to CHCl:CFCCl₃, CH₂:CFCFCl₂, CH₂:CFCF₂Cl, or CH₂:CFCF₃. CFCl:CFCF₃, f.p. -158°, b. 7.9°. CF₃CCl₂CCl₂F m. 41.7°, b. 112.4°. These fluorinated derivs. of C₃H₈ and C₃H₆ were prepared for measurement of interat. distances.

L32 ANSWER 11 OF 11 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1942:26777 HCAPLUS

DOCUMENT NUMBER: 36:26777

ORIGINAL REFERENCE NO.: 36:4090h-i,4091a-e

TITLE: Preparation and directed chlorination of 1,1,1-trifluoropropane

AUTHOR(S): Henne, Albert L.; Whaley, Atherton M.

SOURCE: Journal of the American Chemical Society (1942), 64, 1157-9

CODEN: JACSAT; ISSN: 0002-7863

DOCUMENT TYPE: Journal

LANGUAGE: Unavailable

AB Boiling 10 moles of MeCH₂CHCl₂ with Cl in the dark (Fe as catalyst) gives 6 moles of MeCHClCHCl₂ (b. 130-3°); 10 moles of this, refluxed and stirred with 15 moles of 20% aqueous NaOH, gives 9 moles of MeCH:CCl₂ (b. 75-7°); 10 moles with anhydrous HCl in presence of 2-3% AlCl₃ yields 4.5 moles of MeCHClCCl₃ (b. 106.5-8.5°). EtCCl₃ with SbF₃ in the presence of a catalyst gives only 5-10% EtCF₃ (I) and 10% of a mixture of EtCF₂Cl (II), b. 25.8°, d₄₈ 1.1311, n_{D8} 1.3330, and

EtCFCl₂; without a catalyst practically no fluoride is formed but 50% of MeCH:CCl₂ were isolated. CH₂:CHCCl₃ does not exchange halogens with SbF₃. MeCH:CCl₂ (10 moles) and 25 moles of HF, heated at 75° for 5 hrs. and at 95° until the pressure is 20 atmospheric (the HCl being tapped off intermittently), the product poured into 1300 g. SbF₃ and 250 g. Cl, heated with a free flame and the product tapped off at 13 atmospheric, give 800 g. condensate, from which 3.6 moles each of I (b. -13°, m. -148°) and II were separated by low-temperature distillation Heating 10 moles

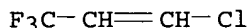
of

II with 1300 g. SbF₃ and 400 g. Cl and 10 moles HF at 95° gives 8.5 moles of I and 0.3 mole of II. The action of Cl upon I in sunlight in a glass container in the vapor phase and then in the liquid phase gives the following: ClCH₂CH₂CF₃, b. 45.1°, m. -106.2°, d₄₂₀ 1.3253, n_{D20} 1.3350; Cl₂CHCH₂CF₃, b. 72.4°, m. -93.2°, d_{D20} 1.4408, n_{D20} 1.3631; Cl₃CCH₂CF₃, b. 95.1°, m. -41.7°, d₄₂₀ 1.5511, n_{D20} 1.3900; Cl₃CCCl₂CF₃, b. 153.1, m. 109°; no evidence for a tetra-Cl derivative was found. Rechlorination of 116 g. of Cl₂CHCH₂CF₃ gives 132 g. Cl₃CCH₂CF₃. MeCHClCCl₃ with HF and HgO at 100° gives 80% of MeCHClCF₃, b. 30°, n_{D20} 1.3150. Chlorination of 93 g. of MeCHClCF₃ gives 111 g. of product, 80% of which was dichlorides; 2/3 was MeCCl₂CF₃, b. 48.8°, m. 13.8°, d₄₂₀ 1.3842, n_{D20} 1.3478, and the remainder was CH₂ClCHClCF₃, b. 76.7°, n_{D20} 1.3671. CHCl₂CH₂CF₃ with alc. alkali yields CHCl:CHCF₃, which with Cl gives Cl₂CHCHClCF₃, b. 106.8°. Cl₃CCCl₂CF₃ with SbCl₂F₃ gives quant. Cl₂CFCCl₂CF₃, b. 112.4°, m. 41.74°, and ClCF₂CCl₂CF₃, b. 72°, m. -4.3°, d_{D20} 1.6681, n_{D20} 1.3519. Cl₂C:CClCF₃, b. 88.3°, m. -114.7°, d₄₂₀ 1.6188, n_{D20} 1.4095. ClCH:CClCF₃, b. 53.7°, m. -109.2°, d₄₂₀ 1.4653, n_{D20} 1.3670. Cl₂C:CHCF₃, b. 55.1°, m. -87.2°, d₄₂₀ 1.4605, n_{D20} 1.3690. ClCH₂CH₂CF₃ does not react with Mg or EtMgBr; with KOH it readily loses HCl but no HF. Cl₂CHCH₂CF₃ reacts readily with alc. alkali to give a quant. yield of ClCH:CHCF₃. Cl₃CCH₂CF₃ loses HCl readily with an alkali; the Cl atoms appear easily replaceable with HgF₂ and preliminary expts. point to the ready formation of CF₃CH₂CF₃.

IT 2730-43-0, Propene, 1-chloro-
3,3,3-trifluoro-
(preparation of)

RN 2730-43-0 HCAPLUS

CN 1-Propene, 1-chloro-3,3,3-trifluoro- (9CI) (CA INDEX NAME)



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L1	21	SEA FILE=REGISTRY	ABB=ON	PLU=ON	C3H2F4/MF
L2	3	SEA FILE=REGISTRY	ABB=ON	PLU=ON	L1 AND 1 (W) 3 (W) 3 (W) 3 (W) TETRAFLUORO?
L3	15	SEA FILE=REGISTRY	ABB=ON	PLU=ON	C3H2CLF3/MF
L4	3	SEA FILE=REGISTRY	ABB=ON	PLU=ON	L3 AND 3 (W) 3 (W) 3 (W) TRIFLUORO? AND 1 (W) CHLORO?
L5	15	SEA FILE=REGISTRY	ABB=ON	PLU=ON	C3HCLF4/MF
L6	3	SEA FILE=REGISTRY	ABB=ON	PLU=ON	L5 AND 1 (W) 3 (W) 3 (W) 3 (W) TETRAFLUORO? AND 1 (W) CHLORO?
L7	7	SEA FILE=REGISTRY	ABB=ON	PLU=ON	C3H3F5/MF
L8	1	SEA FILE=REGISTRY	ABB=ON	PLU=ON	L7 AND 1 (W) 1 (W) 1 (W) 3 (W) 3 (W) PENTAFLUORO?

NTAFLUORO?

L9 108 SEA FILE=HCAPLUS ABB=ON PLU=ON L2 OR (1(W)3(W)3(W)3(W)TETRAFLUORO? AND PROPEN?)

L10 SEL PLU=ON L2 1- CHEM : 9 TERMS

L11 64 SEA FILE=HCAPLUS ABB=ON PLU=ON L10

L12 113 SEA FILE=HCAPLUS ABB=ON PLU=ON L11 OR L9

L13 SEL PLU=ON L4 1- CHEM : 7 TERMS

L14 69 SEA FILE=HCAPLUS ABB=ON PLU=ON L13

L15 140 SEA FILE=HCAPLUS ABB=ON PLU=ON L14 OR (1(W)CHLORO?) (L) (3(W)3(W)3(W)TRIFLUORO?)

L16 SEL PLU=ON L6 1- CHEM : 4 TERMS

L17 12 SEA FILE=HCAPLUS ABB=ON PLU=ON L16

L18 29 SEA FILE=HCAPLUS ABB=ON PLU=ON L17 OR (1(W)CHLORO?) (L) (3(W)3(W)3(W)TETRAFLUORO?)

L19 SEL PLU=ON L8 1- CHEM : 9 TERMS

L20 652 SEA FILE=HCAPLUS ABB=ON PLU=ON L19

L21 831 SEA FILE=HCAPLUS ABB=ON PLU=ON L20 OR (1(W)1(W)1(W)3(W)3(W)PENTAFLUORO?)

L22 46 SEA FILE=HCAPLUS ABB=ON PLU=ON L12 AND (L15 OR L18 OR L21)

L23 39 SEA FILE=REGISTRY ABB=ON PLU=ON HYDROGEN FLUORIDE?/CN

L24 SEL PLU=ON L23 1- CHEM : 173 TERMS

L25 46497 SEA FILE=HCAPLUS ABB=ON PLU=ON L24

L26 46497 SEA FILE=HCAPLUS ABB=ON PLU=ON L25 OR HYDROGEN(W)FLUORIDE?

L27 21 SEA FILE=HCAPLUS ABB=ON PLU=ON L22 AND L26

L29 1341 SEA FILE=REGISTRY ABB=ON PLU=ON SODIUM HYDROXIDE?/CN OR POTASSIUM HYDROXIDE?/CN OR CALCIUM OXIDE?/CN OR CALCIUM DIHYDROXIDE?/CN OR CALCIUM HYDROXIDE?/CN OR CALCIUM OXIDE?

L30 1372 SEA FILE=REGISTRY ABB=ON PLU=ON L29 OR CAUSTIC

L31 740910 SEA FILE=HCAPLUS ABB=ON PLU=ON L30 OR (SODIUM OR POTASSIUM OR CALCIUM) (W)?HYDROXIDE? OR CALCIUM(W)OXIDE? OR KOH OR NAOH OR CAO OR CAO

L32 11 SEA FILE=HCAPLUS ABB=ON PLU=ON (L22 AND L31) NOT L27

L33 14 SEA FILE=HCAPLUS ABB=ON PLU=ON L22 NOT (L27 OR L32)

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=> d ibib abs hitstr l33 1-14

L33 ANSWER 1 OF 14 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:370877 HCAPLUS

DOCUMENT NUMBER: 140:377333

TITLE: Pentafluoropropene-based compositions

INVENTOR(S): Pham, Hang T.; Singh, Rajiv R.; Wilson, David P.

PATENT ASSIGNEE(S): Honeywell International Inc., USA

SOURCE: PCT Int. Appl., 31 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 4

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004037752	A2	20040506	WO 2003-US33797	20031027
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ,			

OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
 TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,
 KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES,
 FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR,
 BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

US 2004127383 A1 20040701 US 2003-694079 20031027
 US 6858571 B2 20050222

PRIORITY APPLN. INFO.: US 2002-421263P P 20021025
 US 2002-421435P P 20021025

AB Provided are azeotrope-like compns. comprising pentafluoropropene (HFO-1225) and a fluid selected from the group consisting of 3,3,3-trifluoropropene (HFO-1243zf), 1,1-difluoroethane (HFC-152a), **trans-1,3,3,3-tetrafluoropropene** (HFO-1234ze), and combinations of two or more thereof. Also provided are uses thereof including as refrigerants, blowing agents, sprayable compns., flame suppressant, and the like. More than one concentration range of HFO-1225 is effective, depending upon the cosolvent.

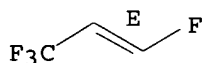
IT 29118-24-9, **trans-1,3,3,3-Tetrafluoropropene**

RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)
 (HFO-1234ze; azeotrope-like pentafluoropropene-based compns.)

RN 29118-24-9 HCAPLUS

CN 1-Propene, 1,3,3,3-tetrafluoro-, (1E)- (9CI) (CA INDEX NAME)

Double bond geometry as shown.



L33 ANSWER 2 OF 14 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:12861 HCAPLUS

DOCUMENT NUMBER: 140:76829

TITLE: Photochemical process of making fluorinated alcohols from the reaction of methanol with fluorinated alkenes

INVENTOR(S): Nair, Haridasan K.; Nalewajek, David; Poss, Andrew

PATENT ASSIGNEE(S): Honeywell International, Inc., USA

SOURCE: U.S., 8 pp.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

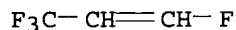
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6673976	B1	20040106	US 2002-247383	20020919
WO 2004026799	A2	20040401	WO 2003-US29694	20030918
WO 2004026799	A3	20040930		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
 CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
 GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
 LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH,
 PL, PT, RO, RU, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA,
 UG, UZ, VN, YU, ZA, ZM, ZW

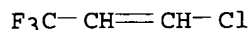
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,

KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES,
 FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR,
 BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: US 2002-247383 A 20020919
 OTHER SOURCE(S): CASREACT 140:76829; MARPAT 140:76829
 AB Methods for producing fluorinated alcs. (e.g., 2,2,4,4,4-pentafluorobutan-
 1-ol) from non-perfluorinated fluoroolefins (e.g., 1,1,3,3,3-
 pentafluoropropene) and methanol in the presence of a free-radical
 initiator (e.g., di-tert-Bu peroxide) and UV irradiation
 IT 1645-83-6, 1,3,3,3-
Tetrafluoropropene 2730-43-0, 1-Chloro
-3,3,3-trifluoropropene
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (photochem. process of making fluorinated alcs. from the reaction of
 methanol with fluorinated alkenes)
 RN 1645-83-6 HCAPLUS
 CN 1-Propene, 1,3,3,3-tetrafluoro- (9CI) (CA INDEX NAME)



RN 2730-43-0 HCAPLUS
 CN 1-Propene, 1-chloro-3,3,3-trifluoro- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L33 ANSWER 3 OF 14 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:606347 HCAPLUS

DOCUMENT NUMBER: 137:154685

TITLE: Method for purification of 1,1,
 1,3,3-
pentafluoropropane

INVENTOR(S): Suzuki, Yasuhiro; Yanase, Koichi; Yokoyama, Takaaki

PATENT ASSIGNEE(S): Asahi Glass Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002226411	A2	20020814	JP 2001-22291	20010130
PRIORITY APPLN. INFO.:			JP 2001-22291	20010130

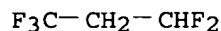
AB The title method comprises contacting 1,1,1,
3,3-pentafluoropropane (I) [which contains 5
 mass ppm to 2 mass % halopropenes] with a solid adsorbent (e.g., activated
 carbon). The treatment of I with activated carbon greatly removed
 fluororopropenes and chlorofluoropropenes.

IT 460-73-1P, 1,1,1,3,
3-Pentafluoropropane

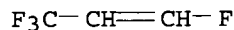
RL: PUR (Purification or recovery); PREP (Preparation)
 (method for purification of 1,1,1,3,

3-pentafluoropropane)

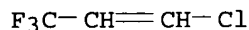
RN 460-73-1 HCAPLUS
 CN Propane, 1,1,1,3,3-pentafluoro- (6CI, 8CI, 9CI) (CA INDEX NAME)



IT 1645-83-6, 1,3,3,3-
Tetrafluoro-1-propene 2730-43-0,
 1-Chloro-3,3,3-
Trifluoro-1-propene
 RL: REM (Removal or disposal); PROC (Process)
 (method for purification of 1,1,1,3,
3-pentafluoropropane)
 RN 1645-83-6 HCAPLUS
 CN 1-Propene, 1,3,3,3-tetrafluoro- (9CI) (CA INDEX NAME)



RN 2730-43-0 HCAPLUS
 CN 1-Propene, 1-chloro-3,3,3-trifluoro- (9CI) (CA INDEX NAME)



L33 ANSWER 4 OF 14 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:268551 HCAPLUS

DOCUMENT NUMBER: 136:279103

TITLE: Preparation of 1,1,1,
3,3-pentafluoropropane

INVENTOR(S): Kaneda, Shozo; Ishihara, Akira; Sakyu, Fuyuhiko;
 Hibino, Yasuo

PATENT ASSIGNEE(S): Central Glass Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

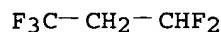
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2002105006	A2	20020410	JP 2000-298230	20000929
PRIORITY APPLN. INFO.:			JP 2000-298230	20000929

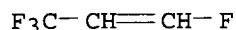
OTHER SOURCE(S): CASREACT 136:279103

AB The compound (I) is prepared by fluorination of 1-chloro-
3,3,3-trifluoropropene or 1
,3,3,3-tetrafluoropropene with HF
 in the presence of Cl₂, wherein fluorination apparatus has a reactor (A) packed
 with SbCl₅/C with temperature ≥150° and a reactor (B) packed with
 SbCl₅/C with temperature 20-150° in series and reactor A and B are used
 as the first reactor alternately and repeatedly. 1-
Chloro-3,3,3-
trifluoropropene was fluorinated with HF in the presence of Cl₂ and
 SbCl₅/C at 180° in the first reactor and 80° in the second

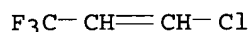
reactor to give 98.1% I.
 IT 460-73-1P, 1,1,1,3,
 3-Pentafluoropropane
 RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP
 (Preparation)
 (preparation of pentafluoropropane)
 RN 460-73-1 HCAPLUS
 CN Propane, 1,1,1,3,3-pentafluoro- (6CI, 8CI, 9CI) (CA INDEX NAME)



IT 1645-83-6, 1,3,3,3-
 Tetrafluoropropene 2730-43-0, 1-Chloro
 -3,3,3-trifluoropropene
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (preparation of pentafluoropropane)
 RN 1645-83-6 HCAPLUS
 CN 1-Propene, 1,3,3,3-tetrafluoro- (9CI) (CA INDEX NAME)



RN 2730-43-0 HCAPLUS
 CN 1-Propene, 1-chloro-3,3,3-trifluoro- (9CI) (CA INDEX NAME)



L33 ANSWER 5 OF 14 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2001:152616 HCAPLUS
 DOCUMENT NUMBER: 134:193124
 TITLE: Method for removing unsaturated impurities from
 1,1,1,3,
 3-pentafluoropropane by chlorination
 INVENTOR(S): Okamoto, Hidekazu; Ohnishi, Keiichi
 PATENT ASSIGNEE(S): Asahi Glass Company, Limited, Japan
 SOURCE: PCT Int. Appl., 13 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001014295	A1	20010301	WO 2000-JP5654	20000823
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				

JP 2001058967	A2	20010306	JP 1999-234980	19990823
EP 1125906	A1	20010822	EP 2000-954939	20000823
EP 1125906	B1	20040421		

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
IE, SI, LT, LV, FI, RO

US 6414203	B1	20020702	US 2001-830061	20010509
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PRIORITY APPLN. INFO.:

JP 1999-234980 A 19990823

WO 2000-JP5654 W 20000823

AB Described is a method of treatment by which the content of unsatd.-compound impurities in 1,1,1,3,3-pentafluoropropane (R245fa) is reduced while minimizing the loss of R245fa. R245fa containing unsatd. compds. as impurities is brought into contact with chlorine gas in a gas phase in the presence of an activated carbon catalyst to convert the unsatd. compds. to chlorine adducts. This process efficiently reduces the content of the impurities such as 1-chloro-3,3,3-trifluoropropene (R1233zd), 1,3,3,3-tetrafluoropropene (R1234ze), 1,2-dichloro-3,3,3-trifluoropropene (R1223x), 1-chloro-1,3,3,3-tetrafluoropropene (R1224zb), 2-chloro-1,3,3,3-tetrafluoropropene (R1224xe), and 2-chloro-3,3,3-trifluoropropene (R1233xf) which are known to be present at a total of 300-20,000 ppm in 1,1,1,3,3-pentafluoropropane and are difficult to remove them by distillation. Thus, Cl(g) at 100 mL/min was passed through an Inconel U tube (54 cm diameter + 600 cm length) packed with activated charcoal catalyst (shirasagi C2X, Takeda Chemical Industries, Ltd., Japan) in a oil bath at 200° for 6 h, followed by feeding a mixture of R245fa 99.100, R1234ze 0.124, R1233zd 0.544% (based on gas chromatog. area), and R235fa (chlorinated R245fa, not detected) at 300 mL/min and Cl(g) at 3 mL/min to contact the catalyst at 150°. The product gas was passed through a water trap to remove the acid components to give a mixture of R245fa 99.580, R1234ze 0.001, R1233zd (not detected) and R235fa 0.076%, recovering 980 g R235fa (99.9% purity).

IT 460-73-1DP, R245Fa, chlorinated derivative
RL: BYP (Byproduct); PREP (Preparation)
(method for removing unsatd. impurities from pentafluoropropane by chlorination over activated charcoal)

RN 460-73-1 HCAPLUS

CN Propane, 1,1,1,3,3-pentafluoro- (6CI, 8CI, 9CI) (CA INDEX NAME)

F₃C-CH₂-CHF₂

IT 460-73-1P, R245Fa
RL: PUR (Purification or recovery); PREP (Preparation)
(method for removing unsatd. impurities from pentafluoropropane by chlorination over activated charcoal)

RN 460-73-1 HCAPLUS

CN Propane, 1,1,1,3,3-pentafluoro- (6CI, 8CI, 9CI) (CA INDEX NAME)

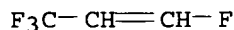
F₃C-CH₂-CHF₂

IT 1645-83-6, 1,3,3,3-Tetrafluoropropene 2730-43-0, 1-Chloro

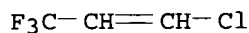
-3,3,3-trifluoropropene

RL: REM (Removal or disposal); PROC (Process)
 (method for removing unsatd. impurities from pentafluoropropane by
 chlorination over activated charcoal)

RN 1645-83-6 HCAPLUS
 CN 1-Propene, 1,3,3,3-tetrafluoro- (9CI) (CA INDEX NAME)



RN 2730-43-0 HCAPLUS
 CN 1-Propene, 1-chloro-3,3,3-trifluoro- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L33 ANSWER 6 OF 14 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1999:733871 HCAPLUS

DOCUMENT NUMBER: 131:323042

TITLE: Multi-step process and catalyst for preparing
 1,1,1-trifluoropropene from 1,1,
 1,3,3-

pentafluoropropane

INVENTOR(S): Van der Puy, Michael

PATENT ASSIGNEE(S): AlliedSignal Inc., USA

SOURCE: U.S., 6 pp., Division of U.S. Ser. No. 794,984.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5986151	A	19991116	US 1998-143133	19980828
PRIORITY APPLN. INFO.:			US 1997-794984	A3 19970205

AB 1,1,1-Trifluoropropene, useful as an intermediate and monomer (no data),
 is prepared in high yield and selectivity by dehydrofluorinating 1
 ,1,1,3,3-

pentafluoropropane in the presence of a Pd/C catalyst to produce
 1,1,1,3-tetrafluoropropene, hydrogenating the 1,1,1,3-tetrafluoropropene
 to produce 1,1,1,3-tetrafluoropropane, and then dehydrofluorinating the
 1,1,1,3-tetrafluoropropane to produce 1,1,1-trifluoropropene.

IT 1645-83-6P 29118-24-9P 29118-25-0P

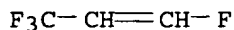
RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic
 preparation); PREP (Preparation); RACT (Reactant or reagent)

(multi-step process and catalyst for preparing 1,1,1-trifluoropropene from
 1,1,1,3,3-

pentafluoropropane)

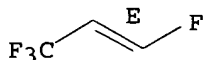
RN 1645-83-6 HCAPLUS

CN 1-Propene, 1,3,3,3-tetrafluoro- (9CI) (CA INDEX NAME)



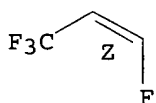
RN 29118-24-9 HCAPLUS
 CN 1-Propene, 1,3,3,3-tetrafluoro-, (1E)- (9CI) (CA INDEX NAME)

Double bond geometry as shown.

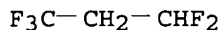


RN 29118-25-0 HCAPLUS
 CN 1-Propene, 1,3,3,3-tetrafluoro-, (1Z)- (9CI) (CA INDEX NAME)

Double bond geometry as shown.



IT 460-73-1, 1,1,1,3,
 3-Pentafluoropropane
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (multi-step process and catalyst for preparing 1,1,1-trifluoropropene from
 1,1,1,3,3-
 pentafluoropropane)
 RN 460-73-1 HCAPLUS
 CN Propane, 1,1,1,3,3-pentafluoro- (6CI, 8CI, 9CI) (CA INDEX NAME)



REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L33 ANSWER 7 OF 14 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1999:331270 HCAPLUS

DOCUMENT NUMBER: 130:352023

TITLE: Continuous preparation of 1,3,
 3,3-tetrafluoropropene

INVENTOR(S): Yoshikawa, Satoru; Kaneda, Shozo

PATENT ASSIGNEE(S): Central Glass Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO..	KIND	DATE	APPLICATION NO.	DATE
JP 11140002	A2	19990525	JP 1997-308541	19971111
PRIORITY APPLN. INFO.:			JP 1997-308541	19971111

AB 1,3,3,3-Tetrafluoropropane

is prepared by passing 1,1,1,3,

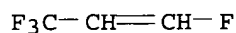
3-pentafluoropropane (I) through the reaction region

heated in a gas phase. The reaction region may be (metal compound-containing)

C. HF was fed into a reactor containing activated C (Shirasagi GX)-supported

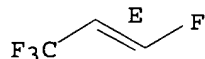
Cr(NO₃)₃ at 380° and then gaseous I was fed into a reactor to give a product containing **trans-1,3,3,3-tetrafluoropropene** (trans-II) 70.8, cis-II 17.6, and I 8.3%.

IT 1645-83-6P, 1,3,3,3-
Tetrafluoropropene 29118-24-9P, **trans-1,3,3,3-Tetrafluoropropene**
 RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)
 (continuous preparation of 1,3,3,3-
tetrafluoropropene from 1,1,1,3,3-pentafluoropropane with activated C-supported Cr catalyst)
 RN 1645-83-6 HCAPLUS
 CN 1-Propene, 1,3,3,3-tetrafluoro- (9CI) (CA INDEX NAME)

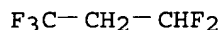


RN 29118-24-9 HCAPLUS
 CN 1-Propene, 1,3,3,3-tetrafluoro-, (1E)- (9CI) (CA INDEX NAME)

Double bond geometry as shown.



IT 460-73-1, 1,1,1,3,
3-Pentafluoropropane
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (continuous preparation of 1,3,3,3-
tetrafluoropropene from 1,1,1,3,3-pentafluoropropane with activated C-supported Cr catalyst)
 RN 460-73-1 HCAPLUS
 CN Propane, 1,1,1,3,3-pentafluoro- (6CI, 8CI, 9CI) (CA INDEX NAME)



L33 ANSWER 8 OF 14 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 1998:555741 HCAPLUS
 DOCUMENT NUMBER: 129:204008
 TITLE: Manufacture of rigid polyurethane foams with less decomposition of 1,1,1,3,3-pentafluoropropane
 INVENTOR(S): Shibata, Noriaki; Tsuchiya, Tatsumi; Ite, Tetsu; Shibamura, Satoshi
 PATENT ASSIGNEE(S): Daikin Industries, Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 10226718	A2	19980825	JP 1997-31843	19970217
PRIORITY APPLN. INFO.:			JP 1997-31843	19970217

AB Title foams are manufactured from polyols and organic polyisocyanates by using 1,1,1,3,3-pentafluoropropane (HFC 245fa) as blowing agent, stabilizers for HFC 245fa, and organic metal-based catalysts and/or imidazole-based catalysts. Thus, 100 parts o-tolylenediamine-based polyether-polyols (OH value 400 mgKOH/g) was reacted with 106 parts polymethylenepolyphenylene isocyanate 106 parts in the presence of SH 193, 1-butyl-2-methylimidazole, HFC 245fa, and nitrobenzene to give a foam with 1,1,1,3-tetrafluoropropylene content 30 ppm.

IT 460-73-1, HFC 245fa
 RL: NUU (Other use, unclassified); USES (Uses)
 (blowing agent; manufacture of rigid polyurethane foams with low content of decomposed compds. of HFC 245fa as blowing agents)

RN 460-73-1 HCAPLUS

CN Propane, 1,1,1,3,3-pentafluoro- (6CI, 8CI, 9CI) (CA INDEX NAME)

$$\text{F}_3\text{C}-\text{CH}_2-\text{CHF}_2$$

IT 1645-83-6
 RL: FMU (Formation, unclassified); MOA (Modifier or additive use); FORM (Formation, nonpreparative); USES (Uses)
 (manufacture of rigid polyurethane foams with low content of decomposed compds. of HFC 245fa as blowing agents)

RN 1645-83-6 HCAPLUS

CN 1-Propene, 1,3,3,3-tetrafluoro- (9CI) (CA INDEX NAME)

$$\text{F}_3\text{C}-\text{CH}=\text{CH}-\text{F}$$

L33 ANSWER 9 OF 14 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1998:341532 HCAPLUS

DOCUMENT NUMBER: 129:17243

TITLE: Liquid-phase catalytic fluorination of hydrochlorocarbon and hydrochlorofluorocarbon

INVENTOR(S): Thenappan, Alagappan; Tung, Hsueh S.; Bell, Robert L.

PATENT ASSIGNEE(S): Alliedsignal Inc., USA

SOURCE: PCT Int. Appl., 27 pp.
 CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9821171	A1	19980522	WO 1997-US20448	19971112
W: AL, AU, BA, BB, BG, BR, CA, CN, CU, CZ, EE, GE, GH, HU, ID, IL, IS, JP, KP, KR, LK, LR, LS, LT, LV, MG, MK, MN, MW, MX, NZ, PL, RO, RU, SD, SG, SI, SK, SL, TR, TT, UA, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR,				

GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA,
GN, ML, MR, NE, SN, TD, TG

US 6023004 A 20000208 US 1996-744157 19961112
CA 2271341 AA 19980522 CA 1997-2271341 19971112
AU 9854324 A1 19980603 AU 1998-54324 19971112
EP 938461 A1 19990901 EP 1997-948216 19971112
EP 938461 B1 20011017
R: DE, ES, FR, GB, IT, NL
JP 2001503771 T2 20010321 JP 1998-522719 19971112
JP 3389251 B2 20030324
EP 1104748 A2 20010606 EP 2001-103592 19971112
EP 1104748 A3 20010613
R: DE, ES, FR, GB, IT, NL
ES 2167798 T3 20020516 ES 1997-948216 19971112
KR 2000053190 A 20000825 KR 1999-704154 19990511
US 6689924 B1 20040210 US 1999-467869 19991220

PRIORITY APPLN. INFO.:

US 1996-744157 A 19961112
EP 1997-948216 A3 19971112
WO 1997-US20448 W 19971112

AB The process is useful for fluorinating hydrochloropropanes, hydrochlorofluoropropanes, hydrochloropropenes and hydrochlorofluoropropenes and most particularly for fluorinating 1,1,1,3,3-pentachloropropane to 1,1,1,3,3-pentafluoropropane. Suitable catalysts include (i) a pentavalent molybdenum halide; (ii) a tetravalent tin or titanium halide; (iii) a mixture of a pentavalent antimony, molybdenum, tantalum or niobium halide with a tetravalent tin or titanium halide; and (iv) a mixture of a pentavalent antimony halide with a trivalent antimony halide. Products of this process are useful in a variety of applications including solvents, blowing agents, and refrigerants. Thus, CCl₃CH₂CHCl₂ was reacted with HF in the presence of SnCl₄ for 5 h at ≤135° to give CF₃CH₂CHF₂ 57, CF₃CH₂CHFCl 9, CF₃CH:CHF 3, and CF₃CH:CHCl 30%.

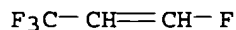
IT 460-73-1P, 1,1,1,3,3-Pentafluoropropane
RL: IMF (Industrial manufacture); PREP (Preparation)
(manufacture of; liquid-phase catalytic fluorination of hydrochlorocarbon and hydrochlorofluorocarbon)

RN 460-73-1 HCAPLUS
CN Propane, 1,1,1,3,3-pentafluoro- (6CI, 8CI, 9CI) (CA INDEX NAME)

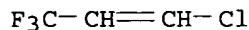
F₃C-CH₂-CHF₂

IT 1645-83-6P, 1,3,3,3-Tetrafluoro-1-propene 2730-43-0P, 1-Chloro-3,3,3-trifluoro-1-propene
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(manufacture of; liquid-phase catalytic fluorination of hydrochlorocarbon and hydrochlorofluorocarbon)

RN 1645-83-6 HCAPLUS
CN 1-Propene, 1,3,3,3-tetrafluoro- (9CI) (CA INDEX NAME)



RN 2730-43-0 HCAPLUS
 CN 1-Propene, 1-chloro-3,3,3-trifluoro- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L33 ANSWER 10 OF 14 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1997:805703 HCAPLUS

DOCUMENT NUMBER: 128:34512

TITLE: Process for preparing 1,1,
1,3,3-

pentafluoropropane by fluorination

INVENTOR(S): Nakada, Tatsuo; Shibamura, Takashi; Yamamoto, Akinori

PATENT ASSIGNEE(S): Daikin Industries Ltd., Japan

SOURCE: PCT Int. Appl., 21 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9745388	A1	19971204	WO 1997-JP956	19970321
W: CN, KR, US				
RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
JP 09323946	A2	19971216	JP 1996-160776	19960531
JP 3518169	B2	20040412		
EP 919528	A1	19990602	EP 1997-907431	19970321
EP 919528	B1	20021113		
R: BE, DE, ES, FR, GB, IT, NL				
ES 2186872	T3	20030516	ES 1997-907431	19970321
KR 2000016199	A	20000325	KR 1998-709767	19981130
US 6316682	B1	20011113	US 1998-194609	19981130
PRIORITY APPLN. INFO.:			JP 1996-160776	A 19960531
			WO 1997-JP956	W 19970321

OTHER SOURCE(S): MARPAT 128:34512

AB Characterized is a process for preparing 1,1,1,
3,3-**pentafluoropropane** (I) by reacting at
least one member selected among chlorofluororopropanes and chloropropanes
represented by CX₃CH₂CHX₂ (X = F, Cl, that not all the X represent F) with
antimony chloride fluoride. I, which substitutes for CFC and HCFC and is
industrially important as a foaming agent, a refrigerant, a detergent and
a propellant, is economically prepared in a high yield.

IT 1645-83-6P 2730-43-0P

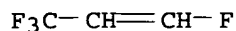
RL: BYP (Byproduct); PREP (Preparation)

(process for preparing 1,1,1,3,

3-**pentafluoropropane** by fluorination)

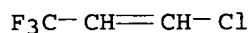
RN 1645-83-6 HCAPLUS

CN 1-Propene, 1,3,3,3-tetrafluoro- (9CI) (CA INDEX NAME)



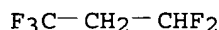
RN 2730-43-0 HCAPLUS

CN 1-Propene, 1-chloro-3,3,3-trifluoro- (9CI) (CA INDEX NAME)

IT 460-73-1P, 1,1,1,3,
3-PentafluoropropaneRL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP
(Preparation)(process for preparing 1,1,1,3,
3-pentafluoropropane by fluorination)

RN 460-73-1 HCAPLUS

CN Propane, 1,1,1,3,3-pentafluoro- (6CI, 8CI, 9CI) (CA INDEX NAME)



L33 ANSWER 11 OF 14 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1996:738194 HCAPLUS

DOCUMENT NUMBER: 126:7676

TITLE: Method of inhibiting decomposition of
1,1,1,2,3,3-hexafluoropropane and 1,
1,1,3,3-
pentafluoropropane and decomposition inhibitor

INVENTOR(S): Tsuchiya, Tatsumi; Ide, Satoshi

PATENT ASSIGNEE(S): Daikin Industries, Ltd., Japan

SOURCE: PCT Int. Appl., 34 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9633153	A1	19961024	WO 1996-JP952	19960404
W: US				
RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
JP 08291089	A2	19961105	JP 1995-93468	19950419
EP 822171	A1	19980204	EP 1996-908366	19960404
EP 822171	B1	20000816		
R: BE, DE, ES, FR, GB, IT, NL				
ES 2150111	T3	20001116	ES 1996-908366	19960404
US 5959165	A	19990928	US 1997-945126	19971017
PRIORITY APPLN. INFO.:			JP 1995-93468	A 19950419
			WO 1996-JP952	W 19960404

AB 1,1,1,2,3,3-Hexafluoropropane (HFC236ea) or 1,1,
1,3,3-pentafluoropropane (HFC245fa)
is mixed with (1) at least one nitro compound and (2) at least one member
selected among aromatic hydrocarbons and alicyclic unsatd. hydrocarbons, and
further with (3) at least one member selected among aliphatic unsatd.
hydrocarbons, epoxy compds., ether compds., phenol compound, ester compds.
and cyclic nitrogen compds. The stabilities of HFC236ea can be remarkably

improved during storage thereof, use thereof, and use of product containing the same. This method for inhibiting decomposition of HFC236ea and HFC245fa is particular useful, when HFC236ea and HFC245fa are used as foaming agents for insulating foams such as polyurethane foams. Thus, 71 weight part polyphenylpolymethylene polyisocyanate was added to a mixture of o-tolylenediamine polyether polyol 100, silicone foaming regulator (SH-193, Tore Silicon, Japan) 1.5, tetramethylhexamethylenediamine (catalyst) 3.4, HFC236ea (foaming agent) 39, PhNO₂ (decomposition inhibitor) 0.5, and α -methylstyrene (decomposition inhibitor) 0.5 weight part, hand-mixed, and aged for 1 day to give a polyurethane foam. This foam was cut into a 10-cm cube, packed in a aluminum-laminated pack, crushed by a press, and the decomposition gas formed in exothermic reaction during urethane foaming, was determined to be 70 and 20 ppm for CF₃CH:CF₂ and CF₃CFHCFH₂, resp., vs. 1,000 and 250 ppm, resp. for the polyurethane foam prepared without using the decomposition inhibitors.

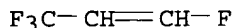
IT 1645-83-6, 1,3,3,3-

Tetrafluoropropylene

RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(method for inhibiting decomposition of hexafluoropropane and pentafluoropropane foaming agents in synthesis of polyurethanes and decomposition inhibitors)

RN 1645-83-6 HCAPLUS

CN 1-Propene, 1,3,3,3-tetrafluoro- (9CI) (CA INDEX NAME)



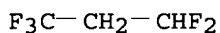
IT 460-73-1, 1,1,1,3,

3-Pentafluoropropane

RL: RCT (Reactant); TEM (Technical or engineered material use); RACT
(Reactant or reagent); USES (Uses)
(method for inhibiting decomposition of hexafluoropropane and pentafluoropropane foaming agents in synthesis of polyurethanes and decomposition inhibitors)

RN 460-73-1 HCAPLUS

CN Propane, 1,1,1,3,3-pentafluoro- (6CI, 8CI, 9CI) (CA INDEX NAME)



L33 ANSWER 12 OF 14 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1987:636016 HCAPLUS

DOCUMENT NUMBER: 107:236016

TITLE: Synthesis of perfluoroallyl chloride and some chlorofluoropropenes

AUTHOR(S): Paleta, Oldrich; Kvicala, Jaroslav; Gunter, Jaroslav; Dedek, Vaclav

CORPORATE SOURCE: Dep. Org. Chem., Prague Inst. Chem. Technol., Prague, 16628/6, Czech.

SOURCE: Bulletin de la Societe Chimique de France (1986), (6), 920-4

CODEN: BSCFAS; ISSN: 0037-8968

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 107:236016

AB Mixts. of pentachlorotrifluoro- or tetrachlorotetrafluoropropane isomers were chlorinated, fluorinated with SbF₃Cl₂, dehalogenated with Zn, and/or

photochem. reduced with Me₂CHOH to give 7 individual chlorofluoropropanes and 6 **propenes**. During the reactions, the isomeric purity increased. ClCF₂CF:CF₂ was prepared in 95% isomeric purity.

L33 ANSWER 13 OF 14 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1962:58309 HCAPLUS

DOCUMENT NUMBER: 56:58309

ORIGINAL REFERENCE NO.: 56:11098g-h

TITLE: The nuclear magnetic resonance spectra of fluorocarbons. III. Halogenated propynes, **propenes**, butenes, and cyclopentenes

AUTHOR(S): Beisner, Henry M.; Brown, Carlton L.; Williams, Dudley

CORPORATE SOURCE: Ohio State Univ., Columbus

SOURCE: Journal of Molecular Spectroscopy (1961), 7, 385-92

CODEN: JMOSA3; ISSN: 0022-2852

DOCUMENT TYPE: Journal

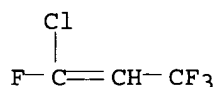
LANGUAGE: Unavailable

AB cf. CA 56, 8198h. The investigation of the nuclear magnetic resonances (NMR) of H₁ and F₁₉ in fluorocarbons is continued (loc. cit.) with the study of the NMR spectra of CF₃C.tplbond.CH, Cl₂C:CHCF₃, ClFC:CHCF₃, CF₃C(Cl):CClCF₃, CF₃C(Cl):CFCF₃, 1,2dichloroperfluorocyclopentene, and perfluorocyclopentene. Interpretation was complicated in some respects by the lack of free rotation about multiple bonds. Chemical shifts at various intermol. sites and spin-spin coupling consts. are determined and tabulated. Mol. parameters are given and spectra are illustrated.

IT 460-71-9, **Propene, 1-chloro-1,3,3,3-tetrafluoro-**
(nuclear magnetic resonance of)

RN 460-71-9 HCAPLUS

CN 1-Propene, 1-chloro-1,3,3,3-tetrafluoro- (9CI) (CA INDEX NAME)



L33 ANSWER 14 OF 14 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1959:6354 HCAPLUS

DOCUMENT NUMBER: 53:6354

ORIGINAL REFERENCE NO.: 53:1102b-c

TITLE: Catalytic hydrogenation of ϕ -olefins

AUTHOR(S): Knunyants, I. L.; Mysov, E. I.; Krasuskaya, M. P.

CORPORATE SOURCE: Inst. Heteroorg. Compds., Moscow

SOURCE: Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya (1958) 906-7

CODEN: IASKA6; ISSN: 0002-3353

DOCUMENT TYPE: Journal

LANGUAGE: Unavailable

AB The following % yields of hydrogenation products were obtained from the indicated olefins with catalysts shown: CF₂:CF₂, Pd, 20°, 96% CF₂HCF₂H; CF₂:CF₂, Ni, 90-100°, 66% CF₂HCF₂H and 14% CF₂HCFH₂; CF₃CF:CF₂, Pd, 20°, 96% CF₃CHFCF₂H; (CF₃)C:CF₂, Pd, 20°, 95% (CF₃)₂CHCF₂H; Ni, 100°, 10% (CF₃)₂CHCF₂H and 75% (CF₃)₂CHMe; CF₂:CFCl, Pd, 20°, 60% CF₂:CFH and 25% CF₂HCFH₂; CF₃CF:CFH, Pd, 20°, 65% CF₃CFHCFH₂; (CF₃)₂C:CFH, Pd, 20°, 85% (CF₃)₂CHCFH₂; (CF₃)₂C:CH₂, Pd, 20°, 85% (CF₃)₂CHMe. The products lose HF readily yielding the corresponding fluoroolefins. CF₃CF:CHF b. -20°; (CF₃)₂C:CHF b. 17°; (CF₃)₂C:CH₂ b. 13°.

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